

Unsolved Question Papers Of Biology Part I

Multan, Bahawalpur, Der Ghazi Khan,
Lahore, Gujranwala, Faislabad, Rawalpindi
and Sargodha Boards

Uptodate

MCQ'S
From

Multan, and other Boards of Secondary and Higher Secondary Education of Punjab

Chapter No: 1 1MCQ Multan Board

- 1) The reasoning that moves from general to specific is called: (Multan Board-1st Annual 2007)
a) Inductive b) Deductive c) Hypothesis d) None of these
- 2) The described species number of the living organisms: (Multan Board-2nd Annual- 2007)
a) 1.5 millions b) 2.5 millions c) 3.00 millions d) 4.00 millions
- 3) A large regional community primarily determined by climate: (Model Paper of Multan Board- 2006-2008)
a) Population b) Biosphere c) Ecosystem d) Biome
- 4) Which one of the following is not a viral disease? (Multan Board-1st Annual 2008)
a) Cow pox b) Mumps c) Tetanus d) Small pox
- 5) The living substance of living being is called: (Multan Board-2nd Annual 2008)
a) Cytoplasm b) Cell c) DNA d) Protoplasm
- 6) Populations of different species living in the same habitat form a: (Multan Board-1st Annual - 2009)
a) Biome b) Biospher c) Community d) All these
- 7) A technique has been developed to repair defective gene is: (Multan Board-2nd Annual 2009)
a) Chemo-therapy b) Radio-therapy c) Gene-therapy d) None
- 8) A group of similar cells that perform similar functions is: (Multan Board-1st Annual 2010)
a) Organ b) Tissue c) System d) Organelle
- 9) The branch of biology which deals with the social behaviour and communal life of human being is: (Multan Board-(S) 2010)
A) Human Biology B) Social Biology
C) Biotechnology D) Molecular Biology
- 10) The tentative explanation of observation is called: (Multan Board-(A) 2011)
A) Law B) Theory C) Hypothesis D) Deduction
- 11) A structure within cell that performs specific function is called: (Multan Board-(S) 2011)
A) Molecule B) Atom C) Organelle D) Compound
- 12) The study of internal structure is: (Multan Board-1st Annual 2012)
A) Morphology B) Anatomy
C) Histology D) Physiology
- 13) The study of tissues called: (Model Paper of Multan Board- Session 2012-2013 and onward)
A) Palaentology B) Anatomy C) Histology D) Evolution
- 14) A structure normally composed of several tissue types that form a functional unit called: (Multan Board-1st Annual 2013)
A) Organ system B) Organelle C) Organ D) Tissue

Bahawalpur Board

- 1) The study of microorganisms such as bacteria, viruses is called: (Bahawalpur Board- 2007)
a) Parasitology b) Cytology c) Virology d) Microbiology
- 2) In humans, 99 % of body mass is made up of: (Bahawalpur Board-2008)

Gujranwala Board

- 1) Which one of the following is not a viral disease? (Gujranwala Board-2006)
a) Cow pox b) Mumps c) Tetanus d) Small pox
- 2) The tentative explanation of observation is called: (Gujranwala Board-2007)
a) Hypothesis b) Deduction c) Law d) Theory
- 3) The branch of biology which deals with the study of social behavior and communal life of human being is: (Gujranwala Board-2008)
a) Human biology b) Molecular biology
c) Social biology d) Environmental biology
- 4) First vaccination technique was developed by: (Gujranwala Board-2009)
a) Jenner b) Kock c) Pasteur d) Brown
- 5) The amount of Na by weight in the human body is: (Gujranwala Board-2010)
a) .35 % b) .25 % c) 0.15 % d) 0.05 %
- 6) Scientist who first developed the technique of vaccination in 1795: (Gujranwala Board-2011)
A) Louis Pasteure B) Edward Jenner
C) Robert Koch D) Robert Brown
- 7) In human body amount of Phosphorous is: (Gujranwala Board-2012)
A) 1 % B) 2% C) 3% D) 4%

Rawalpindi Board

- 1) The amount of Potassium by weight in human body is: (Rawalpindi Board-2010)
a) 0.35 % b) 0.25 % c) 0.15 % d) 0.05
- 2) A large regional community primarily determined by climate is: (Rawalpindi Board-2011)
A) Habitat B) Niche C) Biome D) Environment
- 3) The microscopic study of tissues is called: (Rawalpindi Board-2012)
A) Histology B) Microbiology C) Bacteriology D) Virology

Sargodha Board

- 1) A community together with its non-living surroundings is: (Sargodha Board-2010)
a) Community b) Population c) Ecosystem d) Biosphere
- 2) Radiotherapy is used for: (Sargodha Board-2011)
A) Cancer B) AIDS C) Hepatitis D) Malaria
- 3) Muscle tissue is specialized for: (Sargodha Board-2012)
A) Contraction B) Conduction C) Secretion D) Excretion

Faislabad Board

- 1) A technique that consists of isolating the normal gene and inserting it into the host through bone marrow is: (Faislabad Board-2007)
a) Radio-therapy b) Chemo-therapy c) Gene-therapy d) Cloning
- 2) Degradation of environmental pollutants by living organisms is: (Faislabad Board-2008)
a) Biogeography b) Bioremediation c) Biopesticides d) None
- 3) A biome is a large regional community primarily determined by: (Faislabad Board-2009)
a) Species b) Weather c) Climate d) Water
- 4) The branch of biology which deals with the use of living organisms, systems or processes in manufacturing and service industries is: (Faislabad Board-2010)
a) Parasitology b) Human biology
c) Biotechnology d) Social biology
- 5) The study of distribution of animals in nature is called: (Faislabad Board-2011)

- A) Wild life B) Geography C) Biodiversity D) Zoogeography
- 6) Tentative explanation of observation is called as: (Faislabad Board-2012)
- A) Law B) Theory C) Hypothesis D) Deduction

Chapter No: 2 1MCQ

Multan Board

- 1) Peptide bond is a: (Multan Board-1st Annual 2007)
- a) C-N link b) C-O link c) N-H link d) C-H link
- 2) Enzymes, antibodies, hormones and hemoglobin are examples of: (Multan- Board-- 2nd Annual 2007)
- a) Ovular proteins b) Globular proteins
- c) Fibrous proteins d) Tough proteins
- 3) Substances which on hydrolysis yield polyhydroxy aldehyde or ketone sub-units: (Model Paper of Multan Board-2006-2008)
- a) Acylglycerol b) Polypeptides
- c) Carbohydrates d) Nucleic acids
- 4) Animals obtain Carbohydrates mainly from: (Multan Board-1st Annual 2008)
- a) Glucose b) Starch c) Sucrose d) Glycogen
- 5) The covalent bond between two Monosaccharides is called: (Multan Board-2nd Annual 2008)
- a) Peptide bond b) Glycosidic bond
- c) Ester bond d) Phosphodiester bond
- 6) Each turn of alpha helix of polypeptide chain has-----Amino Acids: (Multan Board-1st Annual 2009)
- a) 36 b) 3.6 c) 2.6 d) Many
- 7) Cotton is the pure form of: (Multan Board-2nd Annual 2009)
- a) Starch b) Glycogen c) Cellulose d) Glucose
- 8) Phosphatidylcholine is one of the common: (Multan Board-1st Annual 2010)
- a) Phospholipid b) Sphingolipid
- c) Glycolipid d) Terpenoid
- 9) A peptide bond is: (Multan Board-2nd Annual 2010)
- A) C-H link B) C-O link C) N-H link D) C-N link
- 10) Carbon is: (Multan Board-(A) 2011)
- A) Monovalent B) Divalent C) Trivalent D) Tetravalent
- 11) Our blood normally contains glucose: (Multan Board-(S) 2011)
- A) 8 % B) 1 % C) 0.8 % D) 0.08 %
- 12) The % age of t RNA in a cell is: (Multan Board-1st Annual 2012)
- A) 3-4 % B) 40-50 % C) 80 % D) 10-20 %
- 13) The percentage of water in bacterial cell is: (Model Paper of Multan Board- Session 2012-2013 and onward)
- A) 70 % B) 60% C) 50 % D) 40 %
- 14) The compound formed by combination of a nitrogen base and a pentose sugar is called: (Multan Board-1st Annual 2013)
- A) Nucleotide B) Nucleoside C) Polypeptide D) Polysaccharide

Bahawalpur Board

- 1) The covalent bond between two monosaccharides is called: (Bahawalpur Board-2007)
- a) Ionic bond b) Covalent bond
- c) Glycosidic bond d) Peptide bond
- 2) The number of amino-acids in alpha chain of hemoglobin is: (Bahawalpur Board-2008)

- a) 121 b) 141 c) 146 d) None of these
- 3) The bond formed between two Monosaccharides to form Oligosaccharide is:
(Bahawalpur Board-2009)
- a) H-bond b) Peptide bond c) Glycosidic bond d) C-C bond
- 3) Tetroses are rare in nature and occur in some: (Bahawalpur Board-2010)
- a) Algae b) Fungi c) Bacteria d) Bryophytes
- 4) Dextrin, Agar, Pectin and Chitin is: (Bahawalpur Board-2011)
- A) Carbohydrate B) Lipid C) Protein D) Nucleic Acid
- 5) The amount of heat absorbed by a liquid when it changes into gas is called:
(Bahawalpur Board-2012)
- A) Heat capacity B) Heat of vaporization
C) Specific heat D) Absorbed heat
- 6) Nucleohistones are present in: (Bahawalpur Board-2013)
- A) Nucleoli B) Chromosomes C) Ribosomes D) Mitochondria

Dera Ghazi Khan Board

- 1) Heat of vaporization of water is: (Dera Ghazi Khan Board-2008)
- a) 100kcal/kg b) 375 kcal/kg c) 574 kcal/kg d) 998 kcal/kg
- 2) The covalent bond between two monosaccharides is called: (Dera Ghazi Khan Board-2009)
- a) Peptide bond b) Glycosidic bond
c) Ester bond d) Phosphodiester bond
- 3) Number of carbon atoms in a molecule of palmitic acid is: (Dera Ghazi Khan Board-2010)
- a) 2 b) 4 c) 16 d) 18
- 4) The amount of heat absorbed by water when it changes into gas is called: (Dera Ghazi Khan Board-2011)
- A) Heat Capacity B) Heat of Vaporization
C) Specific Heat D) Absorbed Heat
5. Phosphatidylcholine is one of the common: (A-2012)
- A) Phospholipid B) Sphingolipid C) Glycolipid D) Terpenoid

Lahore Board

- 1) Which is the most abundant carbohydrate in nature? (Lahore Board-2004)
- a) Starch b) Glycogen c) Pectin d) Cellulose
- 2) Animals obtain carbohydrates mainly from: (Lahore Board-2007)
- a) Glycogen b) Glucose c) Starch d) Sucrose
- 3) The specific heat of vaporization of water is ----- Kcal/kg: (Lahore Board-2008)
- a) 374 b) 474 c) 574 d) 674
- 4) NAD is a: (Lahore Board-2009)
- a) Trisaccharide b) Purine c) Terpenoid d) Dinucleotide
- 5) The amount of heat absorbed when liquid changes into gas, is expressed as calories per gram vaporized is called: (Lahore Board-2010)
- a) Heat capacity b) Specific heat
c) Heat of Vaporization d) Latent heat
- 6) Which one of the following is not a lipid? (Lahore Board-2011)

- A) Chitin B) Rubber C) Cutin D) Cholesterol
- 7) Which one of the following is not a polysaccharide? (Lahore Board-2012)
- A) Glycogen B) Lactose C) Starch D) Dextrin
- 8) Phosphatidylcholine is one of the common: (Lahore Board-2012)
- A) Acylglycerol B) Phospholipid C) Terpenoid D)
- Wax

Gujranwala Board

- 1) The heterogenous group of compounds related to fatty acids is called: (Gujranwala Board-2007)
- a) Protein b) Lipid c) Glucose d) Carbohydrates
- 2) Cotton is the pure form of: (Gujranwala Board-2008)
- a) Cellulose b) Glycogen c) Wax d) Amino acid
- 3) Carbon is: (Gujranwala Board-2009)
- a) Divalent b) Trivalent c) Monovalent d) Tetravalent
- 4) Animals obtain carbohydrates mainly from: (Gujranwala Board-2010)
- a) Glucose b) Starch c) Sucrose d) Glycogen
- 5) The most abundant carbohydrate in nature is: (Gujranwala Board-2011)
- A) Starch B) Glycogen C) Cellulose D) Agar
- 6) Which is not a conjugated molecule? (Gujranwala Board-2012)
- A) Glycoprotein B) Glycolipid C) Polysaccharide D)
- Lipoprotein

Rawalpindi Board

- 1) The sequence of amino acids in a protein molecule was determined by: (Rawalpindi Board-2010)
- a) E. Chatton b) F. Meischer c) F. Sanger d) J. Watson
- 2) Amylose starch is: (Rawalpindi Board-2011)
- A) Unbranched and soluble in cold water
- B) Branched and soluble in cold water
- C) Branched and soluble in organic solvent
- D) Unbranched and soluble in hot water
- 3) The specific heat of vaporization of H₂O is: (Rawalpindi Board-2012)
- A) 374 B) 474 C) 574 D)
- 674

Sargodha Board

- 1) The chief form of carbohydrates stored in animal body is: (Sargodha Board-2010)
- a) Starch b) Glycogen c) Cellulose d) Glucose
- 2) Which one is the most common polysaccharide on earth? (Sargodha Board-2011)
- A) Starch B) Cellulose C) Glycogen D)
- Dextrin
- 3) Most of the monosaccharides form a ring structure when in: (Sargodha Board-2012)
- A) Water B) Solution C) Solvent D)
- Stomach

Faislabad Board

- 1) Amino acids are arranged in proper sequence during protein synthesis according to the

instructions transcribed on: (Faislabad Board-2007)

- a) Transfer RNA b) Ribosomal RNA c) Messenger RNA d)

DNA

- 2) It comprises about 3 to 4 % of the cellular RNA: (Faislabad Board-2008)
a) m RNA b) r RNA c) t RNA d) None of these
- 3) The alpha chain of haemoglobin has amino acids: (Faislabad Board-2009)
a) 174 b) 171 c) 141 d) 146
- 4) Carbon is: (Faislabad Board-2010)
a) Bivalent b) Trivalent c) Covalent d) Tetravalent
- 5) Human tissues have 85% water in cells of: (Faislabad Board-2011)
A) Brain B) Bone C) Blood D) Liver
- 6) The most abundant carbohydrate in nature is: (Faislabad Board 2012)
A) Starch B) Cellulose C) Glycogen D) Agar

Chapter No: 3 1 MCQ

Multan Board

- 1) All enzymes are proteins: (Multan Board-1st Annual 2007)
a) Fibrous b) Globular c) Non-enzymatic d) None of these
- 2) The inactive form of enzyme Pepsin is: (Multan Board-2nd Annual 2007)
a) Holoenzyme b) Pepsinogen c) Apoenzyme d) None
- 3) The active site of an enzyme: (Multan Board-1st Annual 2008)
a) Never changes
b) Forms no chemical bond with substrate
c) Determines, by its structure, the specificity of enzyme
d) Looks like a lump projecting from surface of an enzyme
- 4) An activated enzyme consisting of polypeptide chain and cofactor is called:
(Multan Board-2nd Annual 2008)
a) Apoenzyme b) Holoenzyme c) Co-enzyme d) None of these
- 5) The Optimum pH of Pepsin is: (Multan Board-1st Annual 2009)
a) 2.00 b) 2.50 c) 3.00 d) 4.00
- 6) Induce Fit Model was proposed by: (Multan Board-2nd Annual 2009)
a) Koshland b) Emil Fischer c) Sanger d) Meicher
- 7) The optimum pH for action of Pancreatic Lipase is: (Multan Board-1st Annual 2010)
a) 3.00 b) 5.00 c) 7.00 d) 9.00
- 8) The rate of reaction depends directly on the amount of: (Multan Board-2nd Annual 2010)
A) pH B) Temperature
C) Enzyme concentration D) Substrate concentration
- 9) Co-enzyme is closely related to: (Multan Board- (A) 2011)
A) Vitamins B) Minerals C) Water D) Lipids
- 10) The catalytic activity of Enzyme is restricted to a small portion of the Enzyme known as: (Multan Board- (S) 2011)
A) Active site B) Catalytic site C) Binding site D) Reacting site
- 11) Enzymes involved in the synthesis of proteins are integral part of: (Multan Board-1st Annual 2012)
A) Chloroplast B) Mitochondria C) Ribosome D) Golgi complex
- 12) The optimum pH value for pepsin enzyme in stomach is: (Model Paper of Multan Board-Session 2012-2013 and onward)

- 2.0
- 13) Induce Fit Model of enzyme action was proposed by: (Multan Board-1st Annual 2013)
- A) Emil Fischer B) Lorenz Oken C) Rudlof Virchow D) Koshland

Bahawalpur Board

- 1) When the non-protein part of the enzyme is covalently bonded, it is known as: (Bahawalpur Board-2007)
 a) Prosthetic group b) Cofactor c) Co-enzyme d) Activator
- 2) Optimum pH for pepsin is: (Bahawalpur Board-2008)
 a) 4 b) 2 c) 9 d) 9.70
- 3) The reversible inhibitors have: (Bahawalpur Board-2009)
 a) Strong linkage with enzyme b) Weak linkage
 c) No linkage d) Medium linkage
- 4) Co-enzyme is closely related to: (Bahawalpur Board-2010)
 a) Water b) Vitamins c) Minerals d) Lipids
- 5) Optimum pH of Arginase is: (Bahawalpur Board-2011)
 A) 6.70 B) 7.70 C) 8.70 D) 9.70
- 6) The catalytic activity of enzyme is restricted to a small portion of enzyme, known as: (Bahawalpur Board-2012)
 A) Active site B) Catalytic site C) Binding site D) Reacting site
- 7) Extreme changes in pH cause the bonds in enzyme to break resulting in the: (Bahawalpur Board-2013)
 A) Activation of Enzyme B) Inhibition of Enzyme
 C) Denaturation of Enzyme D) None of these

Dera Ghazi Khan Board

- 1) The optimum pH for pancreatic lipase is: (Dera Ghazi Khan Board-2008)
 a) 2.00 b) 5.50 c) 7.6 d) 9.0
- 2) An activated enzyme consisting of polypeptide chain and co-factor is called: (Dera Ghazi Khan Board-2009)
 a) Apoenzyme b) Holoenzyme c) Co-enzyme d) None of these
- 3) Reversible inhibitors form weak linkages with the: (Dera Ghazi Khan Board-2010)
 a) Enzyme b) Substrate c) Reactant d) Product
- 4) The optimum pH of Enterokinase is: (Dera Ghazi Khan Board-2011)
 A) 4.5 B) 5.00 C) 5.50 D) 6.50
5. According to Lock and Key Model the active site is: (A-2012)
 A) Rigid structure B) Flexible C) Liquid D) All of these

Lahore Board

- 1) If non-protein part is loosely attached to the protein part, it is known as: (Lahore Board-2005)
 a) Co-factor b) Coenzyme c) Holoenzyme d) Prosthetic group
- 2) The optimum pH of Salivary Amylase is: (Lahore Board-2006)
 a) 2.80 b) 4.80 c) 6.80 d) 8.80

- [illegible]

Gujranwala Board

- 1) The non-protein part of enzyme is known as: (Gujranawal Board-2007)
a) Activator b) Co-enzyme c) Co-factor d) Polypeptides
- 2) A lock and key model was proposed by: (Gujranawal Board-2008)
a) Koshland b) Emil Fischer
c) Lorenz Oken d) Rodolf Virchow
- 3) Enzymes lower down the energy of: (Gujranawal Board-2009)
a) Kinetic b) Potential c) Ionic d) Activation
- 4) An activated enzyme consisting of polypeptide chain and a co-factor is known as: (Gujranawal Board-2010)
a) Apoenzyme b) Holoenzyme
c) Co-enzyme d) Activator
- 5) Optimum pH for Pepsin is: (Gujranwala Board-2011)
A) 2.00 B) 4.50 C) 5.50 D) 6.80
- 6) Induced Fit Model was proposed by: (Gujranwala Board-2012)
A) Emil Fisher B) Robert Brown C) Koshland D) Robert Koch

Rawalpindi Board

- 1) 4.50 is optimum pH value for the enzyme: (Rawalpindi Board-2010)
a) Arginase b) Sucrase c) Enterokinase d) Chymocryptase
- 2) Enzymes that are integral part of ribosome are responsible for synthesis of: (Rawalpindi Board-2011)
A) Lipids B) Proteins C) Carbohydrates D) Nucleic acids
- 3) Lock and Key Model was proposed by: (Rawalpindi Board-2012)

A) Koshland B) Fisher C) Flemming D) Watson

Sargodha Board

- 1) If non-protein part is loosely attached to the protein part it is known as: (Sargodha Board 2006)

a) Co-factor	b) Coenzyme
c) Holoenzyme	d) Prosthetic group
- 2) All enzymes are globular: (Sargodha Board-2010)

a) Carbohydrates	b) Lipid	c) Nucleic acid	d) Protein
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- 3) The optimum pH for Salivary Amylase is: (Sargodha Board-2011)

A) 2	B) 4	C) 6.8	D) 7.8
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- 4) Reversible inhibitors form weak linkages with the: (Sargodha Board-2012)

A) Enzyme	B) Reactant	C) Product	D) Substrate
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Faislabad Board

- 1) An activated enzyme consisting of polypeptide chain and a co-factor is known as: (Faislabad Board-2007)

a) Apoenzyme	b) Holoenzyme	c) Enzyme	d) Co-enzyme
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- 2) An activated enzyme consisting of polypeptide chain and a co-factor is: (Faislabad Board-2008)

a) Apoenzyme	b) Cofactor	c) Holozyme	d) Co-enzyme
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- 3) An enzyme and substrate react with each other through charge bearing sites called: (Faislabad Board-2009)

a) Locus	b) Centromere	c) Active sites	d) None
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- 4) Non-protein part of enzyme is called: (Faislabad Board-2010)

a) Co-factor	b) Activator	c) Prosthetic group	d) Vitamins
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- 5) If non-protein part is loosely attached to the protein part of enzyme, it is known as: (Faislabad Board-2011)

A) Co-factor	B) Prosthetic group
C) Co-enzyme	D) Apo-enzyme
- 6) Optimum pH of pepsin is: (Faislabad Board 2012)

A) 2.00	B) 4.50	C) 5.50	D) 6.80
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Chapter No: 4 1 MCQ

Multan Board

- 1) In 1831, the presence of nucleus in the cell was reported by: (Multan Board-2007)

a) Robert Koch	b) Robert Hooke
c) Robert Mug Abe	d) Robert Brown
- 2) Who reported the presence of Nucleus in the cell? (Multan Board-1st Annual 2007)

a) Robert Brown	b) Schwann	c) Lorenz	d) Hooke
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- 3) Which statement about plastid is true? (Multan Board-1st Annual 2008)

a) They are surrounded by single membrane
b) They are power house of the cell.
c) They are found in all organisms.

- d) They contain DNA and Ribosomes.
- 4) Tay Sachs disease results due to accumulation in brain cells: (Model Paper of Multan Board-2006-2008)
- a) Many ions b) Glucose c) Lipids d) RNA
- 5) The resolution of electron microscope ranges between: (Multan Board-2nd Annual 2008)
- a) 1-2 Angstrom b) 2-3 Angstrom
c) 2-4 Angstrom d) 1-4 Angstrom
- 6) A group of Ribosome attached to m RNA is known as: (Multan Board-1st Annual 2009)
- a) Autophagosomes b) Polysomes c) Cisterna d) None of these
- 7) A chromosome is composed of: (Multan Board-2nd Annual 2009)
- a) RNA b) DNA c) ATP d) NAD
- 8) A group of Ribosomes attached to mRNA is known as: (Multan Board-1st Annual 2010)
- a) Peroxisomes b) Glyoxisomes c) Polysomes d) Lysosomes
- 9) The number of nuclear pores in erythrocytes is about: (Multan Board-(S) 2010)
- A) 4 B) 7 C) 10 D) 30
- 10) Micrographia is famous publication of: (Multan Board- (A) 2011)
- A) Larenz Oken B) Rudolf Virchow
C) Robert Hooke D) Robert Brown
- 11) Tay-Sach's disease results due to accumulation in brain cells: (Multan Board- (S) 2011)
- A) Proteins B) Lipids C) Mg++ D) RNA
- 12) Cristae are found in: (Multan Board-2012)
- A) Mitochondria B) Chloroplast C) Golgi Complex D) ER
- 13) De Duve discovered the cell organelle: (Model Paper of Multan Board- Session 2012-2013 and onward)
- A) Mitochondria B) Lysosomes C) Ribosomes D) Chloroplasts
- 14) Which of the following cells store surplus food? (Multan Board-1st Annual 2013)
- A) Chlorenchymatous cells B) Parenchymatous cells
C) Sclerenchymatous cells D) Meristematic cells

Bahawalpur Board

- 1) The soluble part of cytoplasm is called: (Bahawalpur Board-2007)
- a) Cisternae b) Gel c) Polysome d) Cytosol
- 2) The number of Chromosomes in sperm of Drosophila is: (Bahawalpur Board-2008)
- a) 8 b) 4 c) 6 d) 23
- 3) Ominis cellula-e-cellula is the statement of: (Bahawalpur Board-2009)
- a) Darwin b) Hooke
c) Leeuwenhooke d) Rudolf Virchow
- 4) Micrographia was published by: (Bahawalpur Board-2010)
- a) Robert Hooke b) Robert Brown
c) Lorenz Oken d) Louis Pasteur
- 5) The enzymes for Glyoxylate Cycle are located in the: (Bahawalpur Board-2011)
- A) Golgi Bodies B) Lysosomes
C) Glyoxysomes D) Peroxisomes
- 6) Cyclosis and amoeboid movements are because of: (Bahawalpur Board-2012)
- A) Microtubules B) Microfilaments
C) Intermediate filaments D) Macrotubules
- 7) In 1831, Robert Brown reported the presence of: (Bahawalpur Board-2013)
- A) Golgi Bodies in Cell B) Mitochondria in Cell
C) Lysosomes in Cell D) Nucleus in Cell

Dera Ghazi Khan Board

- 1) There are 3 or 4 pores in: (Dera Ghazi Khan Board-2008)
 a) Egg cell b) Erythrocytes c) Liver cells d) Neurons
- 2) The resolution of Electron microscope ranges between: (Dera Ghazi Khan Board-2009)
 a) 1-2 Angstrom b) 2-3 Angstrom
 c) 2-4 Angstrom d) 1-4 angstrom
- 3) Centriole is associated with: (Dera Ghazi Khan Board-2010)
 a) DNA synthesis b) Spindle formation
 c) Respiration d) Reproduction
- 4) Centriole is associated with: (Dera Ghazi Khan Board-2011)
 A) DNA synthesis B) Spindle formation
 C) Respiration D) Reproduction
5. Membrane bounded green pigment containing bodies present in the cells are called as:
 (A-2012)
 A) Plastids B) Chloroplasts C) Chromoplasts D) Leucoplasts

Lahore Board

- 1) Ribosomes are particles of: (Lahore Board-2005)
 a) Riboglyco-protein b) Riboglyco-lipid
 c) Ribonucleo-protein d) Ribonucleo-lipid
- 2) The cells which secrete their hormones are: (Lahore Board-2005)
 a) Blood cells b) Nerve cells c) Cell walls d) Gland cells
- 3) The number of chromosomes in fruit fly *Drosophila melanogaster* is: (Lahore Board-2006)
 a) 16 b) 26 c) 8 d) 48
- 4) Resolution of electron microscope ranges between: (Lahore Board-2007)
 a) 1-2 um b) 1-5 mm c) 1-3 Angstrom d) 2-4 Angstrom
- 5) The ribosomal RNA (r RNA) is synthesized and stored in: (Lahore Board-2007)
 a) Nucleus b) Nucleolus c) Nucleoplasm d) Mitochondria
- 6) Endocytosis which involves ingestion of solid material is: (Lahore Board-2008)
 a) Pinocytosis b) Phagocytosis
 c) Solidocytosis d) Both b and c
- 7) What is first to be formed between two newly formed plant cell? (Lahore Board-2009)
 a) Cell membrane b) Primary cell wall
 c) Secondary cell wall d) None of these
- 8) Lysosomes were isolated and studied for the first time by: (Lahore Board-2010)
 a) Polade b) De-Duve c) Golgi d) Virchow
- 9) Lysosomes were discovered by: (Lahore Board-2011)
 A) Schawann B) Virchow C) Golgi D) De-Duve
- 10) In prokaryotic cell wall strengthening material is: (Lahore Board-2012)
 A) Chitin B) Lignin C) Cutin D) Murein
- 11) The cyclosis and ameboid movements are due to: (Lahore Board-2012)
 A) Microtubules B) Microfilament
 C) Intermediate filament D) All of these

Gujranwala Board

- 1) Resolution power of a typical microscope is: (Gujranawal Board-2004)
 a) 1.0 um b) 2.0 um c) 300 X d) 2-4 Angstrom
- 2) The fluid which surrounds the thylakoid is called: (Gujranawal Board-2005)
 a) Matrix b) Stroma c) Milieu d) Medium

- 3) Membrane bound green pigment containing bodies present in the cells are called:
(Gujranwala Board-2007)
- | | |
|-----------------|-----------------|
| a) Plastids | b) Chloroplasts |
| c) Chromoplasts | d) Leukoplasts |
- 4) Generally the cells with more than two nuclei are called: (Gujranwala Board-2008)
- | | |
|---------------|------------------|
| a) Anucleate | b) Multinucleate |
| c) Binucleate | d) Mononucleate |
- 5) Eukaryotic ribosomal units when combined make up: (Gujranwala Board-2009)
- | | |
|--------------------|-------------------|
| a) 100 S particles | b) 90 S particles |
| c) 80S particles | d) 70 S particles |
- 6) The cell theory was proposed by: (Gujranwala Board-2010)
- | | |
|--------------------------|-------------------|
| a) Laren Oken | b) Robert Brown |
| c) Schwann and Schleiden | d) Rudolf Virchow |
- 7) Protein present in Microtubules is: (Gujranwala Board-2011)
- | | | | |
|----------|-----------|------------|----------------|
| A) Actin | B) Myosin | C) Tubulin | D) Tropomyosin |
|----------|-----------|------------|----------------|
- 8) Tay-Sach's disease is because of the absence of an enzyme that is involved in the catabolism of: (Gujranwala Board-2012)
- | | | | |
|-------------|--------------------|---------------------|----|
| A) Proteins | B) Polysaccharides | C) Oligosaccharides | D) |
|-------------|--------------------|---------------------|----|

Lipids

Rawalpindi Board

- 1) Microraphia is famous publication of: (Rawalpindi Board-2010)
- | | |
|-----------------|-------------------|
| a) Robert Hooke | b) Rbert Brown |
| c) Robert Kock | d) Rudolf Virchow |
- 2) The statement "Omnis cellula-e -cellula" was given by: (Rawalpindi Board-2011)
- | | | | |
|---------|-----------|------------|----|
| A) Oken | B) Lamark | C) Virchow | D) |
|---------|-----------|------------|----|

Pasteur

- 3) The resolution of electron microscope ranges between: (Rawalpindi Board-2012)
- | | | | |
|-----------|-----------------|-----------------|-----------|
| A) 2-6 um | B) 2-4 Angstrom | C) 3-6 Angstrom | D) 3-9 mm |
|-----------|-----------------|-----------------|-----------|

mm

Sargodha Board

- 1) Ribosomes are particles of: (Sargodha Board 2005)
- | | |
|-----------------------|---------------------|
| a) Riboglyco-protein | b) Riboglyco-lipid |
| c) Ribonucleo-protein | d) Ribonucleo-lipid |
- 2) The cells which secrete their hormones are: (Sargodha Board 2005)
- | | | | |
|----------------|----------------|----------------|---------------|
| a) Blood cells | b) Nerve cells | c) Gland cells | d) Bone cells |
|----------------|----------------|----------------|---------------|
- 3) A group of ribosomes attached to mRNA is known as: (Sargoha Board-2010)
- | | | | |
|-------------|-------------|---------------|---------------|
| a) Lysosome | b) Polysome | c) Peroxisome | d) Glyoxisome |
|-------------|-------------|---------------|---------------|
- 4) Which of the one in the following is a prokaryote? (Sargodha Board-2011)
- | | | | |
|-----------|----------|----------|---------------------|
| A) Amoeba | B) Algae | C) Fungi | D) Blue green algae |
|-----------|----------|----------|---------------------|
- 5) The fluid that surrounds the thylakoid is called: (Sargodha Board-2012)
- | | | | |
|-----------|-----------|------------|----|
| A) Matrix | B) Stroma | C) Miliess | D) |
|-----------|-----------|------------|----|

Medium

Faislabad Board

- 1) Cell was discovered by: (Faislabad Board-2007)
- | | | | |
|-----------------|----------------|-----------------|--------------|
| a) Robert Brown | b) Lorenz Oken | c) Robert Hooke | d) Schleiden |
|-----------------|----------------|-----------------|--------------|
- 2) They impart colors other than green: (Faislabad Board-2008)

- a) Chloroplasts b) Chromoplasts c) Leucoplasts d) None
- 3) The number of chromosomes in fruitfly *Drosophila melanogaster* is: (Faislabad Board-2009)
- a) 8 b) 18 c) 28 d) 16
- 4) Resolution of typical compound microscope is: (Faislabad Board-2010)
- a) 1.0 μm b) 2.0 μm c) 3.0 μm d) 4.0 μm
- 5) Cyclosis and Ameboid Movement are because of: (Faislabad Board-2011)
- A) Microtubules B) Microfilaments
C) Intermediate filament D) Centriole
- 6) The protein present in microtubules is: (Faislabad Board 2012)
- A) Actin B) Myosin C) Tropomyosin D) Tubulin

Chapter No: 5 1 MCQ

Multan Board

- 1) In five kingdom classification developed by Whittaker, members of the Kingdom Plantae are autotrophic, eukaryote and: (Multan Board-1st Annual 2007)
- a) Multicellular b) Motile
c) Having sexual reproduction d) None of these
- 2) The scientific name of onion is: (Multan Board-2nd Annual 2007)
- a) *Cassia fistula* b) *Allium cepa*
c) *Solanum esculentum* d) *Solanum tuberosum*
- 3) The infectious proteins are: (Model Paper of Multan Board-2006-2008)
- a) Viruses b) Viroids c) Virions d) Prions
- 4) A virion is a: (Multan Board-1st Annual 2008)
- a) Virus b) Viral protein c) Viral lysozyme d) Viral gene
- 5) In classification, an order is sub-divided into: (Multan Board-2nd Annual 200)
- a) Classes b) Families c) Genera d) Species
- 6) Capsid is made up of protein and subunits known as: (Multan Board-1st Annual 2009)
- a) Sarcomere b) Capsomere c) Capsoids d) None
- 7) The botanical name of onion is: (Multan Board-2nd Annual 2009)
- a) *Zea mays* b) *Cassia fistula*
c) *Solanum tuberosum* d) *Allium cepa*
- 8) Mad cow infection and mysterious brain infection in man are caused by: (Multan Board-1st Annual 2010)
- a) Bacteria b) Virions c) Fungi d) Prions
- 9) The botanical name of corn is: (Multan Board-(S) 2010)
- A) *Avena sativa* B) *Triticum aestivum*
C) *Zea mays* D) *Solanum tuberosum*
- 10) Scientific name for potato is: (Multan Board-(A) 2011)
- A) *Solanum nigrum* B) *Solanum tuberosum*
C) *Solanum melangena* D) *Solanum xanthocarpum*
- 11) A family includes related: (Multan Board-(S) 2011)
- A) Individuals B) Species C) Genera D) Orders
- 12) Hepatitis D is also called: (Multan Board-(A) 2012)
- A) Serum Hepatitis B) Infectious
Hepatitis
C) Delta Hepatitis D) Bacterial
Hepatitis
- 13) In classification the order of *Zea mays* is: (Model Paper of Multan Board- Session 2012-2013 and onward)
- A) Poales B) Anthophyta C) Plantae D) Poaceae
- 14) Which one of the following is not a RNA virus? (Multan Board-1st Annual 2013)
- A) Retrovirus B) Paramyxoviruses C) Herpes virus D) Polio virus

Bahawalpur Board

- 1) Capsid is made up of protein sub-units known as: (Bahawalpur Board-2007)
a) Protein b) Capsomeres c) Envelop d) Genome
- 2) Which of these is also called as Serum Hepatitis? (Bahawalpur Board-2008)
a) Hepatitis A b) Hepatitis B c) Hepatitis E d) None
- 3) One of the following is caused by HIV: (Bahawalpur Board-2009)
a) Typhoid b) AIDS c) Malaria d) Sleeping Sickness
- 4) HIV infects and multiplies in: (Bahawalpur Board-2010)
a) Cat b) Monkey c) Dog d) Pigs
- 5) Foot and Mouth disease is caused by: (Bahawalpur Board-2011)
A) Algae B) Bacteria C) Fungi D) Virus
- 6) Family includes related: (Bahawalpur Board-2012)
A) Individuals B) Species C) Genera D) Orders
- 7) Small pox is caused by Pox Virus which is: (Bahawalpur Board-2013)
A) DNA Naked Virus B) RNA Naked Virus
C) DNA Enveloped Virus D) Complex Virus

Dera Ghazi Khan Board

- 1) Five kingdom systems classification was proposed by: (Dera Ghazi Khan Board-2008)
a) E.Chotton b) Ernst Haeckel
c) Linnaeus d) Robert Whittaker
- 2) The branch which deals with the study of Virus is called: (Dera Ghazi Khan Board-2009)
a) Biology b) Cytology c) Viriology d) Texanomy
- 3) The five kingdom system of classification is proposed by: (Dera Ghazi Khan Board-2010)
a) R. Koch b) R. Hooke c) R. Brown d) R. Whittaker
- 4) Linnaeus published the list of names of plants and animals in: (Dera Ghazi Khan Board-2011)
A) 1750 B) 1763 C) 1756 D) 1758
- 5) The major cell infected by HIV is the helper: (Dera Ghazi Khan Board-2012)
A) A-Monocyte B) T-Monocyte
C) B-Lymphocyte D) T-Lymphocyte

Lahore Board

- 1) Paramyxoviruses cause the disease: (Lahore Board-2004)
a) Influenza b) Polio
c) Mumps and measles d) Herpes
- 2) The major cell infected by HIV is the Helper: (Lahore Board-2007)
a) A-monocyte b) T-monocyte
c) B-lymphocyte d) T-lymphocyte
- 3) The scientific name of onion (piyaz) is: (Lahore Board-2007)
a) *Allium cepa* b) *Cassia fistula*
c) *Homo sapiens* d) *Solanum tuberosum*
- 4) Which of the following is not caused by virus? (Lahore Board-2008)
a) Cholera b) Hepatitis c) Influenza d) Polio
- 5) Which type of hepatitis leads to chronic liver disease? (Lahore Board-2009)
a) Hepatitis A b) Hepatitis B c) Hepatitis C d) Hepatitis D
- 6) The basic unit of classification is: (Lahore Board-2010)
a) Genus b) Phylum c) Class d) Species
- 7) The smallest known viruses are of: (Lahore Board-2011)
A) Bacteriophage B) Small pox C) Polio D) Mumps
- 8) Towart in 1915 and D Herelle in 1917 discovered: (Lahore Board-2012)

- virus A) Pox virus B) Adenoirus C) Bacteriophages D) Herpes
- 9) Small pox is: (Lahore Board-2012)
A) DNA virus B) DNA enveloped
virus C) RNA virus D) RNA enveloped
virus
- 10) Hepatitis and cholera is spread by: (Lahore Board-2012)
A) Trypanosoma B) Fleas C) Tse- Tse fly D) House
fly

Gujranwala Board

- 1) Small pox is caused by: (Gujranawala Board-2005)
a) Virus b) Bacteria c) Fungi d) Protozoa
- 2) A temperate phage may exist as: (Gujranawala Board-2006)
a) Prophage b) Capsid c) Viroic d) Retrovirus
- 3) The branch which deals with the study of virus is called: (Gujranawala Board-2007)
a) Biology b) Cytology c) Virology d) Taxonomy
- 4) AIDS is caused by: (Gujranawala Board-2008)
a) Fungi b) Bacteria c) Virus d) Lichen
- 5) Influenza viruses are: (Gujranawala Board-2009)
a) DNA enveloped b) DNA naked
c) RNA naked d) RNA enveloped
- 6) The number of Capsomeres present in the Capsid of Adeno Virus is: (Gujranawala Board-2010)
a) 152 b) 162 c) 252 d) 262
- 7) Small pox is caused by: (Gujranwala Board-2011)
A) Bacteria B) Fungi C) Protozoans D) Viruses
- 8) The common name for *Allium cepa* is: (Gujranwala Board-2012)
A) Birinjal B) Amaltas C) Onion D) Potato

Rawalpindi Board

- 1) The mysterious brain infection is caused by: (Rawalpindi Board-2010)
a) Virion b) Bacteria c) Prion d) Fungi
- 2) In 1866, Hackel proposed third kingdom known as: (Rawalpindi Board-2011)
A) Monera B) Plantae C) Fungi D) Protista
- 3) Herpes virus is responsible for Herpes: (Rawalpindi Board-2012)
A) Simplex B) Duplex C) Triplex D) Quadruple

Sargodha Board

- 1) The number of Capsomeres in the Capsids of Herpes Virus is: (Sargoha Board-2010)
a) 152 b) 162 c) 252 d) 262
- 2) Euglena is included in Kingdom: (Sargodha Board-2011)
A) Monera B) Protista C) Fungi D) Plantae
- 3) Capsid is made up of protein sub-units known as: (Sargodha Board-2012)
A) Capsidomeres B) Capsomeres C) Capomere D) Protomeres

Faislabad Board

- 1) A group of population which can interbreed freely and produces fertile offspring is called: (Faislabad Board-2007)
a) Population b) Genera c) Species d) Order
- 2) The virion is surrounded by a protein coat called: (Faislabad Board-2008)
a) Capsomere b) Centromere c) Capsid d) None of these
- 3) The first step in the replication of a Bacteriophage is: (Faislabad Board-2008)
a) Penetration b) Adsorption c) Injection d) None
- 4) Eukaryotic multi-cellular autotrophs are included in kingdom: (Faislabad Board-2009)
a) Animalia b) Monera c) Protista d) Plantae
- 5) The scientific name of onion is: (Faislabad Board-2009)
a) *Allium cepa* b) *Cassia fistula*
c) *Homo sapiens* d) *Solanum nigrum*
- 6) Botanical name for potato is: (Faislabad Board-2010)
a) *Solanum melangena* b) *Cassia fistula*
c) *Solanum tubersum* d) *Zea mays*
- 7) The Capsomeres present in the Capsid of Adeno Virus are: (Faislabad Board-2011)
A) 162 B) 200 C) 252 D) 352
- 8) Small pox is caused by: (Faislabad Board-2012)
A) Bacteria B) Fungi C) Virus D) Protozoans

Chapter No: 6 1 MCQ

Multan Board

- 1) Some bacteria exchange genetic material from a donor to a recipient during a process called: (Multan Board-1st Annual 2007)
a) Crossing over b) Conjugation c) Linkage d) None
- 2) Bacteria require low concentration of oxygen: (Model Paper of Multan Board-2006-2008)
a) Aerobic b) Anaerobic c) Microaerophilic d) Facultative
- 3) Which of the following is not found in all bacterial cells? (Multan Board-1st Annual 2008)
a) Cell membrane b) Ribosome c) A Nucleoid d) Capsule
- 4) Which of the following do not possess cell wall? (Multan Board-2nd Annual 2008)
a) E. coli b) Mycoplasma c) Vibrio d) Yeast
- 5) Bacteria without any flagella are called: (Multan Board-1st Annual 2009)
a) Peritrichous b) Atrichous
c) Lophotrichous d) Monotrichous
- 6) The dormant, thick walled, desiccation resistant forms in bacteria are: (Multan Board-2nd Annual 2009)
a) Spore b) Cyst c) Plasmid d) Nucleoid
- 7) Curved or comma shaped bacteria are called: (Multan Board-1st Annual 2010)
a) Vibrio b) Spirillum c) Spirochetes d) Bacilli
- 8) Mesosomes are invagination of: (Multan Board-(S) 2010)
A) Cell wall B) Cell membrane C) Nuclear membrane D) Tonoplast
- 9) Pili are primarily involved in a mating process between cells called: (Multan Board-(A) 2011)
A) Conjugation B) Translocation C) Transformation D) Binary Fission
- 10) Some bacteria are microaerophilic like: (Multan Board-(S) 2011)
A) *Pseudomonas* B) *Compylobacter* C) *E. coli* D) Spirochete
- 11) Grape like cluster of Cocci is called: (Multan Board-(A) 2012)

- A) Saphylococcus B) Streptococcus C) Sarcina D) Tetrad
- 12) The bacteria with tuft of flagella at one pole are called: (Model Paper of Multan Board-Session 2012-2013 and onward)
- A) Atrichous B) Monotrichous C) Lophotrichous D) Amphitrichous
- 13) Bacteria divide at exponential rate during: (Multan Board-1st Annual 2013)
- A) Stationary phase B) Decline phase C) Log phase D) lag phase

Bahawalpur Board

- 1) If tuft of flagella is present only at one pole of bacteria called as: (Bahawalpur Board-i2007)
- a) Atrichous b) Lophotrichous c) Peritrichous d) None
- 2) Sarcina is a cube of: (Bahawalpur Board-2008)
- a) 6 Cocci b) 8 Cocci c) 4 Cocci d) 4 Bacilli
- 3) Bacterial Cell Membrane also contains enzyme for: (Bahawalpur Board-2009)
- a) Respiration b) Photosynthesis c) Both a and b d) None
- 4) Important vectors in modern genetic engineering techniques are: (Bahawalpur Board-2010)
- a) Mesosomes b) Ribosomes c) Plasmids d) Nucleoid
- 5) Which of the following do not have cell wall? (Bahawalpur Board-2011)
- A) E.coli B) Mycoplasma C) Vibrio D) Spirochete
- 6) Some bacteria are microaerophilic like: (Bahawalpur Board-2012)
- A) *Compylobacter* B) *Pseudomonas* C) *E. coli* D) Spirochete
- 7) Germ Theory of Disease was formulated by: (Bahawalpur Board-2013)
- A) Louis Pasteur B) Robert Kock
C) Antone Van Leeuwenhoek D) Edward Jenner

Dera Ghazi Khan Board

- 1) Many bacteria contain an extra nuclear, double stranded circular DNA called: (Dera Ghazi Khan Board-2008)
- a) Cyst b) Mesosome c) Plasmid d) Spore
- 2) Which of the following do not possess cell wall? (Dera Ghazi Khan Board-2009)
- a) E. coli b) Mycoplasma c) Vibrio d) Yeast
- 3) Bacteria without any flagella are called: (Dera Ghazi Khan Board-2010)
- a) Atrichous b) Monotrichous c) Lophotrichous d) Peritrichous
- 4) When tuft of flagella are present at two poles of bacteria, the condition is called: (Dera Ghazi Khan Board-2011)
- A) Lophotrichous B) Peritrichous C) Atrichous D) Amphitrichous
5. Bacteria endospores function in: (Dera Ghazi Khan Board-2012)
- A) Nutrition B) Reproduction C) Survival D) Protein Synthesis

Lahore Board

- 1) Mesosomes are internal extensions of the: (Lahore Board-2006)

- a) Cell wall b) Capsule c) Cell membrane d) All these
- 2) Rapid phase of growth of bacteria is: (Lahore Board-2007)
a) Lag phase b) Log phase c) Stationary phase d) Decline phase
- 3) A bacterium with single flagellum is: (Lahore Board-2008)
a) Atrichous b) Lophotrichous c) Ampihtrichous d) Monotrichous
- 4) Cyanobacteria exist in the form of: (Lahore Board-2009)
a) Unicellular b) Filaments c) Colony d) All of these
- 5) These are smallest and without cell wall: (Lahore Board-2010)
a) *Mycoplasma* b) *Pseudomonas* c) *Spirochete* d) *E. coli*
- 6) A cube of 8 Cocci is called: (Lahore Board-2011)
A) Sarcina B) Octomer C) Tetrad D) Streptococci
- 7) Which one of the following is a microaerophilic bacterium? (Lahore Board-2012)
A) *Compylobacter* B) *Pseudomonas* C) *Spirochete* D) *E. coli*
- 8) Aerobic bacterium is: (Lahore Board-2012)
A) *Compylobacter* B) *E. coli* C) *Pseudomonas* D) None of these

Gujranwala Board

- 1) The condition in which bacteria are without any flagella is called: (Gujranawala Board-2004)
a) Monotrichous b) Atrichous c) Lophotrichous d) Amphrichous
- 2) Which one of the following is not found in all bacteria? (Gujranawala Board-2006)
a) Cell membrane b) Ribosomes c) Nucleoid d) Capsule
- 3) Mesosomes are internal extensions of the: (Gujranwala Board-2007)
a) Cell wall b) Cell membrane c) Chromatin d) Capsule
- 4) Bacteria increase in number by an asexual means of reproduction called: (Gujranwala Board-2008)
a) Binary fission b) Regeneration c) Budding d) All of these
- 5) Conjugation in bacteria is promoted by: (Gujranwala Board-2009)
a) Flagella b) Pili c) Cilia d) Gametes
- 6) Which is present in both gram-positive bacteria and gram-negative cell wall? (Gujranwala Board-2010)
a) An outer membrane b) Peptidoglycan
c) Teichoic acid d) Lipopolysaccharides
- 7) Important vector in a modern genetic engineering technique is: (Gujranwala Board-2011)
A) Plasmid B) Nucleoid C) Mesosome D) Ribosome
- 8) Misuse of Streptomycin can cause: (Gujranawala Board-2012)
A) Allergic reactions B) Discoloration of teeth C) Head ache D) Deafness

Rawalpindi Board

- 1) Misuse of penicillin may cause: (Rawalpindi Board-2010)
a) Fever b) Deafness c) Allergy d) Discoloration of teeth
- 2) The word "Antibiotic" is: (Rawalpindi Board-2011)

- A) Italian B) Latin C) French D) Greek
- 3) Primary function of flagella is to help in: (Rawalpindi Board-2012)
A) Walking B) Motility C) Running D) Rest

Sargodha Board

- 1) Bacterial arrangement in having division in random planes is: (Sargodha Board-2010)
a) Staphylococcus b) Streptococcus c) Sarcina d) Tetrad
- 2) The smallest bacteria is: (Sargodha Board-2011)
A) *Mycoplasma* B) *E. coli* C) *Compylobacter* D) *Clostridium*
- 3) The condition in which bacteria have a single polar flagellum is called: (Sargodha Board-2012)
A) Monotrichous B) Atrichous C) Lophotrichous C) Amphitrichous

Faislabad Board

- 1) Bacteria which are able to grow in the presence of oxygen is called: (Faislabad Board-2007)
a) Aerobic bacteria b) Anaerobic bacteria
c) Facultative bacteria d) Microaerophilic bacteria
- 2) If tuft of flagella is present only at one pole: (Faislabad Board-2008)
a) Lophotrichous b) Monotrichous
c) Ampitrichous d) Peritrichous
- 3) Who proved that microorganisms could cause disease? (Faislabad Board-2010)
a) Louis pasture b) A.V.Leeuwenhook
c) Robert Hooke d) Robert Brown
- 4) Bacterial membranes differ from eukaryotic membranes in lacking: (Faislabad Board-2011)
A) Cholesterol B) Proteins C) Lipids D) Techoic acid
- 5) Reserve food material in Cyanobacteria is: (Faislabad Board 2012)
A) Starch B) Glycogen C) Fats D) Glycerol

Chapter No: 7 1 MCQ

Multan Board

- 1) Amoebas move and obtain food by means of: (Multan Board-1st Annual 2007)
a) Cilia b) Flagella c) Plasmodium d) Pseudopodia
- 2) Algae in which body is differentiated into Blades, stipes and hold fast belong to: (Multan Board-2nd Annual 2007)
a) Golden algae b) Diatoms c) Kelps d) Green algae
- 3) The cell wall consists of two shells that overlap like a petridish: (Model Paper of Multan Board-2006-2008)

- a) Forameniferans b) Actinopods c) Slime molds d) Diatoms
- 4) The sexual process exhibited by most ciliates is called: (Multan Board-1st Annual 2008)
a) Oogamy b) Binary fission c) Conjugation d) Fertilization
- 5) Pseudopodia are present in: (Multan Board-2nd Annual 2008)
a) Amoeba b) Actinopods c) Foraminiferans d) All of these
- 6) Algae in which body is differentiated into Blades, stipes and hold fast belong to: (Multan Board-1st Annual 2009)
a) Golden algae b) Kelps c) Diatoms d) Euglenoids
- 7) Most ciliates are capable of a sexual process called: (Multan Board-2nd Annual 2009)
a) Transduction b) Conjugation
c) Transformation d) Double fertilization
- 8) An outer flexible covering of ciliate is: (Multan Board-1st Annual 2010)
a) Cell wall b) Pellicle c) Sheath d) Cuticle
- 9) Ecologically, dinoflagellates are one of the most important groups of: (Multan Board-(S) 2010)
A) Producer B) Primary consumers
C) Secondary consumers D) Decomposers
- 10) A human parasite causing African Sleeping Sickness is: (Multan Board-(A) 2011)
A) *Euglena* B) *Trypanosoma*
C) *Stentor* D) *Vorticella*
- 11) Most ciliates are capable of sexual process called: (Multan Board-(S) 2011)
A) Conjugation B) Oogamy C) Mating D) Plasmogamy
- 12) Apicomplexans move by means of: (Multan Board-(A) 2012)
A) Cilia B) Flagella C) Flexing D) All of these
- 13) Apicomplexan move by: (Model Paper of Multan Board- Session 2012-2013 and onward)
A) Tube feet B) Pseudopodia C) Undulating D) Flexing
- 14) Phycoerythrin is found in: (Multan Board-1st Annual 2013)
A) Rhodophyta B) Rhodophyta C) Phaeophyta D) Chrysophyta

Bahawalpur Board

- 1) The sexual process exhibited by most ciliates is called: (Bahawalpur Board-2007)
a) Oogamy b) Binary fission c) Conjugation d) Fertilization
- 2) *Volvox* belongs to phylum: (Bahawalpur Board-2008)
a) Chlorophyta b) Rhodophyta c) Phaeophyta d) Pyrrophyta
- 3) Feeding stage of slime mold is: (Bahawalpur Board-2009)
a) Mycelium b) Hyphae c) Plasmodium d) Pseudopodium
- 4) The vector in African Sleeping Sickness is: (Bahawalpur Board-2010)
a) House fly b) Tsetse fly c) Fruit fly d) Butterfly
- 5) Giants of the Protist Kingdom are included: (Bahawalpur Board-2011)
A) Green Algae B) Red Algae
C) Brown Algae D) Diatoms
- 6) Most ciliates are capable of sexual process called: (Bahawalpur Board-2012)

- A) Oogamy B) Mating C) Conjugation D) Plasmogamy
 7) John Hogg proposed the kingdom: (Bahawalpur Board-2013)
 A) Monera B) Fungi C) Fungi D) Protocista

Dera Ghazi Khan Board

- 1) Multi-cellular giants of protest kingdom are included in: (Dera Ghazi Khan Board-2008)
 a) Brown algae b) Diatoms c) Apicomplexans d) Zooflagellates
- 2) Pseudopodia are present in: (Dera Ghazi Khan Board-2009)
 a) Amoeba b) Actinopods c) Foraminiferans d) All of these
- 3) The cause of malaria is: (Dera Ghazi Khan Board-2010)
 a) *Trypanosoma* b) *Plasmodium* c) *Amoeba* d) *Paramecium*
- 4) Who proposed kingdom Protista for microscopic organisms? (Dera Ghazi Khan Board-2011)
 A) Whittikar B) John Hogg
 C) H. Copeland D) Haeckel
- 5) Which are the major Producers in Aquatic System? (Dera Ghazi Khan Board-2012)
 A) Green Algae B) Diatoms C) Slime Molds D) Ferns

Lahore Board

- 1) Which are the major producers in aquatic ecosystem? (Lahore Board-2004)
 a) Green algae b) Diatoms c) Euglenoids d) Red algae
- 2) Feeding stage of slime mold is: (Lahore Board-2005)
 a) Blastostyle b) Gastoroid c) Plasmodium d) Sporozoite
- 3) Which of the following causes sleeping sickness? (Lahore Board-2008)
 a) Trichonymphas b) *Trypanosoma* c) Choanoflagellates d) None
- 4) Parasitic protozoan that form spores at some stage in their life belong to: (Lahore Board-2009)
 a) Ciliates b) Zooflagellates c) Apicomplexans d) Actinopods
- 5) Amebic dysentery is caused by: (Lahore Board-2010)
 a) *Amoeba* b) *Entamoeba* c) *Vorticella* d) *Plasmodium*
- 6) *Pleomyxa palustris* is: (Lahore Board-2011)
 A) Bacterium B) Amoeba C) Ciliate D) Zooflagellate
- 7) Which one of the following is not a ciliate? (Lahore Board-2012)
 A) *Paramecium* B) *Vorticella* C) *Trypanosoma* D) *Stentor*
- 8) *Ceratium* belongs to: (Lahore Board-2012)
 A) Pyrrophyta B) Chrysophyta C) Phaeophyta D) Rhodophyta

Gujranwala Board

- 1) The Tse-Tse fly of African countries transmits *Trypanosoma*, the cause of: (Gujranawala Board-2006)

- a) Sleeping sickness b) Skin diseases d) Lung infection d) Both a and b
- 2) Amoebae move and obtain food by means of: (Gujranawala Board-2006)
a) Plasmodium b) Flagella c) Cilia d) Pseudopodia
- 3) The closest relatives of fungi are probably: (Gujranawala Board-2006)
a) Aschelminthes b) Diatoms c) Slime molds d) Ferns
- 4) Algae which have shells composed of two halves that fit together like Petri dish belong to: (Gujranawala Board-2007)
a) Brown algae b) Diatoms c) Green algae d) Red algae
- 5) Amoeba moves and obtains food by means of: (Gujranawala Board-2007)
a) Tentacles b) Pseudopodia c) Cilia d) Flagella
- 6) Chlorella is: (Gujranawala Board-2009)
a) Multicellular b) Acellular
c) Unicellular motile d) Unicellular non-motile
- 7) African Sleeping Sickness is caused by: (Gujranawala Board-2010)
a) *Trypanosoma* b) *Entamoeba* c) *Plasmodium* d) *Stentor*
- 8) Algae which take part in building coral reefs along with coral animals: (Gujranawala Board-2011)
A) Diatoms B) Red Algae C) Green Algae D) Brown Algae
- 9) Common name for Pyrrophyta is: (Gujranawala Board-2012)
A) Euglenoids B) Diatoms C) Dinoflagellates D) Brown algae

Rawalpindi Board

- 1) The scientific name of giant amoeba is: (Rawalpindi Board-2010)
a) *Entamoeba histolytica* b) *Amoeba proteus*
c) *Pelomyxa palustris* d) *Vorticella*
- 2) The feeding stage of a slime mold is: (Rawalpindi Board-2011)
A) Plasmodium B) Pseudopodium C) Mycelium D) Hyphae
- 3) Example of Apicomplexans is: (Rawalpindi Board-2012)
A) *Plasmodium* B) *Amoeba* C) *Stentor* D) *Trypanosoma*

Sargodha Board

- 1) The feeding stage of a slime mold is: (Sargodha Board-2005)
a) Blastostyle b) Gastrozooids c) Plasmodium d) Sporozoite
- 2) Tests of feraminifera are made up of: (Sargodha Board-2010)
a) Calcium b) Silica c) Oxalate d) Magnesium
- 3) Which one structure is not present in protists? (Sargodha Board-2011)
A) Flagella B) Embryo C) Cilia D) Chlorophyll
- 4) Most ciliates are capable of sexual process called: (Sargodha Board-2012)
A) Oogamy B) Mating C) Conjugation D) Copulation

Faislabad Board

- 1) Amoebas move and obtain food by means of: (Faislabad Board-2007)
a) Flagella b) Plasmodium c) Pseudopodia d) Cilia
- 2) Amoebas move and obtain food by means of: (Faislabad Board-2008)
a) Plasmodium b) Flagella c) Cilia d) Pseudopodia
- 3) The sexual process exhibited by most ciliates is called: (Faislabad Board-2009)
a) Binary fission b) Conjugation c) Oogamy d)

Fertilization

- 4) The intestinal parasite causes amebic dysentery in humans is: (Faislabad Board-2010)
a) Trichonymphas b) *Pelomyxa pelustris*
c) *Entamoeba histolytica* d) Apicomplexans
- 5) The scientific name of giant amoeba is: (Rawalpindi Board-2010)
a) *Entamoeba histolytica* b) *Amoeba proteus*
c) *Pelomyxa palustris* d) *Vorticella*
- 6) Which one is member of Chrysophyta? (Faislabad Board-2011)
A) *Ceratium* B) *Macrocystis*
C) *Polysiphonia* D) *Pinnularia*
- 7) Algae which take part in building coral reefs along with coral animals are:
(Faislabad Board 2012)
A) Red algae B) Brown algae C) Green algae D)

Diatoms

Chapter No: 8 1 MCQ

Multan Board

- 1) Cell wall of fungi contains: (Multan Board-1st Annual 2007)
a) Cellulose b) Chitin c) Calcium Carbonate d) None of these
 - 2) Carcinogenic mycotoxins called Aflatoxins are produced by: (Model Paper of Multan Board-2006-2008)
a) *Aspergillus* b) *Penicillium* c) *Neurospora* d)
- #### Ustilago
- 3) *Saccharomyces cerevecae* is the most exploited: (Multan Board-1st Annual 2008)
a) Rust b) Brown mold c) Green mold d) Yeast
 - 4) Histoplasmosis is a disease of: (Multan Board-2nd Annual 2008)
a) Eyes b) Stomach c) Lungs d) None of these
 - 5) These are ecologically important as bio-indicators of Air Pollution: (Multan Board-1st Annual 2009)
a) Yeasts b) Lichens c) Mycorrhizae d) Viruses
 - 6) Mutualistic association between certain fungi and roots of vascular plants is:
(Multan Board-2nd Annual 2009)
a) Lichen b) Mycorrhizae c) Arthrotrys d) None of these
 - 7) Poisonous mushrooms are called: (Multan Board-1st Annual 2010)
a) Truffles b) Morels c) Toad stools d)
- #### Agaricus
- 8) Imperfect fungi show special kind of genetic recombination in which portions of chromosomes of two nuclei in the same hypha are exchanged: (Multan Board-2nd Annual 2010)
A) Sexuality B) Parasexuality C) Conjugation D)
- #### Transduction
- 9) The major structural component of fungus cell wall is: (Multan Board-(A) 2011)
A) Cellulose B) Lignin C) Chitin D) Renin
 - 10) Reindeer moss is a: (Multan Board-(S) 2011)

- A) Moss B) Mycorrhiza C) Algae D)
- Lichen
- 11) Fungi reproduce asexually by means of: (Multan Board-(A) 2012)
A) Spores B) Conidia C) Budding D) All of these
- 12) The skeleton of arthropoda is made of: (Model Paper of Multan Board- Session 2012-2013 and onward)
A) Cellulose B) Chitin C) Polysaccharide D) Lignin
- 14) Phycoerythrin is found in: (Multan Board-1st Annual 2013)
A) Rhodophyta B) Rhodophyta C) Phaeophyta D) Chrysophyta

Bahawalpur Board

- 1) Which of these structures are associated with asexual reproduction? (Bahawalpur Board-2007)
a) Ascospore b) Basidiospore c) Zygosporangium d) Conidia
- 2) Which of the following does not produce conidia? (Bahawalpur Board-2008)
a) Zygomycota b) Deuteromycota c) Ascomycota d) None of these
- 3) Deuteromycetes lack: (Bahawalpur Board-2009)
a) Mycelium b) Asexual reproduction
c) Spores d) Sexual reproduction
- 4) Histoplasmosis is a serious infection of: (Bahawalpur Board-2010)
a) Liver b) Stomach c) Kidney d) Lungs
- 5) The species of Edible Mushroom are about: (Bahawalpur Board-2011)
A) 100 B) 200
C) 300 D) 400
- 6) Ustilago species is most common: (Bahawalpur Board-2012)
A) Rust fungi B) Yeasts C) Mold D) Smut fungi
- 7) John Hogg proposed the kingdom: (Bahawalpur Board-2013)
A) Monera B) Fungi C) Eukarya D) Protocista

Dera Ghazi Khan Board

- 1) The relationship of Fungi with that of Lichen and Mycorrhizae is: (Dera Ghazi Khan Board-2008)
a) Facultative parasitic b) Mutualistic symbiotic
c) Parasitic d) Predatory
- 2) Histoplasmosis is a disease of: (Dera Ghazi Khan Board-2009)
a) Eyes b) Stomach c) Lungs d) None of these
- 3) Smut fungus belong to genus: (Dera Ghazi Khan Board-2010)
a) *Ustilago* b) *Puccinia* c) *Alternaria* d) *Penicillium*
- 4) Lovastatin is used in: (Dera Ghazi Khan Board-2011)
A) Lowering blood cholesterol B) Organ transplant
C) Inhibiting fungal growth D) Headache
5. In Fungi Asexual Reproduction takes place by: (A-2012)
A) Conidia B) Fragmentation C) Budding D) All these

Lahore Board

- 1) Most of the visible part of lichen consists of: (Lahore Board-2005)
a) Algae b) Fungi c) Virus d) Bacteria

- 2) Lovastatin is the fungal product which lowers the blood: (Lahore Board-2006)
 a) Sugar b) Urea c) Ca^{++} d) Cholesterol
- 3) Which of the following is major structural component of fungus cell wall? (Lahore Board-2007)
 a) Cellulose b) Peptidoglycan c) Chitin d) Lignin
- 4) Histoplasmosis is: (Lahore Board-2008)
 a) Heart disease b) Kidney disease c) Lung disease d) None of these
- 5) Brush like arrangement of its conidia is characteristics of: (Lahore Board-2009)
 a) Rhizopus b) *Penicillium* c) Ustilago d) Agaricus
- 6) Citric acid is also obtained from some species of fungi called: (Lahore Board-2010)
 a) *Agaricus* b) *Aspergillus* c) Yeast d) *Penicillium*
- 7) Deadly poisonous fungus is: (Lahore Board-2011)
 A) *Agaricus* B) *Armillaria* C) *Morchella* D) *Amanita*
- 8) Which one of the following is used for lowering blood cholesterol? (Lahore Board-2012)
 A) Grisofulvin B) Penicillin C) Cyclosporin D) Lovastatin
- 9) Rust disease is caused by: (Lahore Board-2012)
 A) *Puccinia* B) *Aspergillus* C) Yeast D) *Ustilago*

Gujranwala Board

- 1) The mushrooms whose gills glow in the dark: (Gujranawala Board-2004)
 a) *Amanita verna* b) Truffles
 c) *Agaricus* d) *Omphalopus olearius*
- 2) *Puccinia* species are most common: (Gujranawala Board-2005)
 a) Smut fungi b) Spitting fungi c) Bracket fungi d) Rust fungi
- 3) The imperfect fungi is also called: (Gujranawala Board-2007)
 a) Basidiomycetes b) Ascomycetes c) Deuteromycetes d) Zygomycetes
- 4) Fungi are heterotrophs that lack cellulose in their cell wall and contain a chemical found in external skeleton of arthropods: (Gujranawala Board-2008)
 a) Cutin b) Lignin c) Pectin d) Chitin
- 5) Which is absent in fungi? (Gujranawala Board-2009)
 a) Chlorophyll b) Hyphae c) Glycogen d) Chitin
- 6) The closest relatives of fungi are probably: (Gujranawala Board-2010)
 a) Animal b) Slime mold c) Brown algae d) Vascular plants
- 7) The principal decomposers of cellulose and lignin are: (Gujranawala Board-2011)
 A) Bacteria B) Viruses C) Fungi D) Protozoans
- 8) Despite absence of sexual reproduction, imperfect fungi show special kind of sexual reproduction called as: (Gujranawala Board-2012)
 A) Karyogamy B) Plasmogamy C) Conjugation D) Parasexuality

Rawalpindi Board

- 1) Oyster mushroom is considered as: (Rawalpindi Board-2010)
 a) Parasitic fungi b) Saprotrophic fungi
 c) Carnivorous fungi d) Mycorrhizal fungi
- 2) The closest relatives of fungi are probably: (Rawalpindi Board-2011)

- 3) A) Plants B) Animals C) Bacteria D) Brown algae
 Agaricus are: (Rawalpindi Board-2012)
 A) Poinous fungi B) Edible fungi
 C) Pathogenic fungi D) Parasitic fungi

Sargodha Board

- 1) Most of the visible part of lichen consists of: (Sargodha Board-2005)
 a) Algae b) Fungi c) Roots d) Bacteria
 2) The chemical found in the external skeleton of arthropods is: (Sargodha Board-2010)
 a) Cutin b) Suberin c) Chitin d) Lignin
 3) Lovastatin is used for: (Sargodha Board-2011)
 A) Lowering blood pressure B) Removing germs
 C) Lowering blood cholesterol D) Lowering temperature
 4) Most of the visible part of Lichen consists of: (Sargodha Board-2012)
 A) Algae B) Fungi C) Roots D) Bacteria

Faislabad Board

- 1) Symbiotic association between fungi and algae is called: (Faislabad Board-2007)
 a) Predator b) Parasite c) Autotroph d) Lichens
 2) *Penicillium* belongs to: (Faislabad Board-2008)
 a) Basidiomycetes b) Deutemycetes
 c) Ascomycetes d) Zygomycetes
 3) The cell wall of fungi contains: (Faislabad Board-2009)
 a) Pectin b) Lignin c) Celulose d) Chitin
 4) Ecological role of fungi as decomposer is parallel only by: (Faislabad Board-2010)
 a) Arthropoda b) Bacteria c) Algae d) Bryophytes
 5) *Ustilago* species is most common: (Faislabad Board-2011)
 A) Rust Fungi B) Smut Fungi
 C) Yeast D) Mold
 6) Histoplasmosis is serious infection of: (Faislabad Board 2012)
 A) Liver B) Stomach C) Kidney D) Lung

Chapter No: 9 1 MCQ

Multan Board

- 1) The tracheophytes are further sub-divided into: (Multan Board-1st Annual 2007)
 a) 3 sub-divisions b) 2 sub-divisions
 c) 8 sub-divisions d) 4 sub-divisions
 2) The leaves are small having a single undivided vein is called: (Multan Board-1st Annual 2007)
 a) Megaphylls b) Microphylls c) Blade d) Lamina
 3) The plants that have no vascular system, gametophyte, dominant, sporophyte attached to gametophytes are known as: (Multan Board-2nd Annual 2007)
 a) Tracheophytes b) Bryophytes c) Gametophyte d) Sporophyte
 4) In *Anthoceros* sporophyte at the junction of foot and spore producing region, there is a band of: (Model Paper of Multan Board-2006-2008)
 a) Paraphysis b) Meristematic tissue c) Phloem d) Xylem
 5) The megasporophylls bearing ovules are not folded and joined at the margins to form an ovary: (Model Paper of Multan Board-2006-2008)
 a) Filicineae b) Monocotyledonae
 c) Dichotyledonae d) Gymnospermae
 6) A male gametophyte of an angiosperm is the: (Multan Board-1st Annual 2008)

- a) Anther b) Embryo sac c) Microspore d) Germinating pollen grain
- 7) A heterosporous plant is one that: (Multan Board-1st Annual 2008)
- a) Produces a gametophyte that bears both sex organs
 b) Produces Microspores and Megaspores in separate sporangia giving rise to separate Male and Female Gametophytes
 c) Is seedless vascular plant
 d) Produces two kinds of spores one sexually by mitosis and one type by meiosis
- 8) Whisk ferns belong to sub-division: (Multan Board-2nd Annual 2008)
- a) Psilopsida b) Lycopsidea c) Sphenopsida d) Pteropsida
- 9) A haploid spermatozoid fuses with a haploid egg to produce diploid: (Multan Board-1st Annual 2009)
- a) Spore b) Oospore c) Oosphere d) Gamete
- 10) The megaspore develops into female gametophyte of angiosperm, which consists of:
- (Multan Board-1st Annual 2009)
- a) 8 cells b) 2 cells c) 7 cells d) 3 cells
- 11) The reproductive organ of sporophyte is: (Multan Board-2nd Annual 2009)
- a) Sporangium b) Sparangium c) Anthridium d) Archegonium
- 12) Selaginella resemble seed producing plants because of: (Multan Board-2nd Annual 2009)
- a) Homosporous b) Homogamous c) Heterosporous d) Heterogamous
- 13) *Lycopescicum esculentura* belongs to: (Multan Board-1st Annual 2010)
- a) Cruciferae b) Fabaceae c) Solanaceae d) Poaceae
- 14) All seed producing plants are called: (Multan Board-(S) 2010)
- A) Rhodophyta B) Bryophyta C) Pteridophyta D) Spermatophyta
- 15) Rootless sporophyte is found in: (Multan Board-(A) 2011)
- A) Psilopsida B) Lycopsidea C) Sphenopsida D) Pteropsida
- 16) An ovule is an integumented indehiscent: (Multan Board-(S) 2011)
- A) Megasporangium B) Microsporangium C) Embryo sac D) Seed
- 17) Which one of the following is termed as horsetail? (Multan Board-(A) 2012)
- A) Lycopsidea B) Sphenopsida C) Pteropsida D) Psilopsida
- 18) Which one of the following is called Sago Palm? (Multan Board-(A) 2012)
- A) Pinus B) Cycas C) Cedrus D) Picea
- 19) Unequal development of various branches during evolution of leaf is: (Model Paper of Multan Board-Session 2012-2013 and onward)
- A) Webbing B) Fusion C) Overtopping D) Planation
- 20) *Capsicum frutescens* belongs to family: (Multan Board-1st Annual 2013)
- A) Rosaceae B) Solanaceae C) Fabaceae D) Mimosaceae

Bahawalpur Board

- 1) In anthoceros sporophyte at the junction of foot and spore producing region there is a band of: (Bahawalpur Board-2007)
- a) Paraphysis b) Meristematic tissue c) Phloem d) Xylem
- 2) The arrangement of unequal dichotomies in one plane is termed as: (Bahawalpur Board-2007)
- a) Venation b) Overtopping c) Planation d) Network

- 3) Strobilus is the reproductive structure of: (Bahawalpur Board-2008)
 a) *Selaginella* b) *Equisetum* c) *Psilotum* d) *Rhynia*
- 5) *Triticum* is a member of: (Bahawalpur Board-2008)
 a) Poaceae b) Solanaceae c) Rosaceae d) Fabaceae
- 6) In one of the following is present Circinate Vernation: (Bahawalpur Board-2009)
 a) Ferns b) Cycas c) Both a and b d) None of these
- 7) The male gametophyte of an angiosperm is: (Bahawalpur Board-2009)
 a) Anther b) Embryo sac c) Microspore d) Germinated pollen grain
- 8) A flower is modified: (Bahawalpur Board-2010)
 a) Stem b) Shoot c) Leaf d) Root
- 9) Pulses belong to the following family: (Bahawalpur Board-2011)
 A) Rosaceae B) Solanaceae
 C) Fabaceae D) Poaceae
- 10) Sphenopsida are commonly called: (Bahawalpur Board-2013)
 A) Whisk ferns B) Horsetails C) Club Mosses D) Horn Worts

Dera Ghazi Khan Board

- 1) The male gametophyte of an angiosperm is: (Dera Ghazi Khan Board-2008)
 a) Anther b) Germinated pollen grain c) Microspore d) Ovule
- 2) Evolution of heterospory led to the evolution of: (Dera Ghazi Khan Board-2008)
 a) Leaves b) Root c) Scales d) Seeds
- 3) Atropine is obtained from a plant which belongs to: (Dera Ghazi Khan Board-2009)
 a) Rosaceae b) Solanaceae c) Fabaceae d) Poaceae
- 4) Heterospory is the production of two type of: (Dera Ghazi Khan Board-2009)
 a) Gametes b) Spores c) Sperms d) Eggs
- 5) Anthoceros is commonly called: (Dera Ghazi Khan Board-2010)
 a) Moss b) Hair cap moss c) Hornwort d) Liverwort
- 6) The biological name of sweet pea is: (Dera Ghazi Khan Board-2011)
 A) *Archis hypogea* B) *Solanum nigrum*
 C) *Lathyrus odoratus* D) *Lycopersicum esculentum*
- 7) A flower is a modified: (A-2012)
 A) Stem B) Shoot C) Leaf D) Root
- 8) Endosperm of Angiosperm is: (A-2012)
 A) 1 N B) 2 N C) 3 N D) 4 N

Lahore Board

- 1) *Clitoria ternatea* is used against: (Lahore Board-2005)
 a) Dog bite b) Insect bite c) Horse bite d) Snake bite
- 2) Female gametophyte in angiosperm is also called: (Lahore Board-2007)
 a) Archegonium b) Ovary c) Seed d) Embryo sac
- 3) The common name of *Allium cepa* is: (Lahore Board-2007)
 a) Piyaz b) Bathu c) Amaltas d) Chana
- 4) Vascular plants are: (Lahore Board-2008)
 a) Bryophytes b) Embryophytes c) Tracheophytes d) None of these
- 5) The biological name of Amaltas is: (Lahore Board-2008)
 a) *Cassia senna* b) *Bauhinia variegata* c) *Cassia fistula* d) None

- 6) The period in which first complete seed plant appeared is: (Lahore Board-2009)
a) Devonian b) Permian c) Silurian d) Carboniferous
- 7) The fruit of leguminosae: (Lahore Board-2009)
a) Legume b) Pod c) Caryopsis d) Berry
- 8) In spermatophytes, seed is formed from: (Lahore Board-2010)
a) Ovary b) Ovule c) Anther d) Embryo sac
- 9) Tomato and potato belong to family: (Lahore Board-2011)
A) Poaceae B) Rosaceae C) Solanaceae D) Mimosaceae
- 10) Which one of the following is not extinct? (Lahore Board-2012)
A) *Horneophyton* B) *Psilotum* C) *Psilophyton* D) *Cooksonia*
- 11) *Arachis hypogea* belongs to: (Lahore Board-2012)
A) Rosaceae B) Solanaceae C) Fabaceae D) Caesalpiaceae
- 12) Which one is used against snake bite? (Lahore Board-2012)
A) *Glycyrrhiza galbra* B) *Abrus precacatorious*
C) *Clitoria ternatea* D) *Indigofera tinctoria*
- 13) The scientific name for peanut is: (Lahore Board-2012)
A) *Lathyrus odoratus* B) *Arachis hypogea*
C) *Dalbergia sisso* D) *Tamarindus indica*

Gujranwala Board

- 1) A haploid spermatozoid (antherozoid) fuses with the haploid egg of oosphere to produce: (Gujranawala Board-2004)
a) Haploid oospore b) Zygote c) Diploid oospore d) Both b and c
- 2) Solanaceae has plant: (Gujranawala Board-2007)
a) *Solanum tuberosum* b) *Pyrus*
c) *Lathyrus odoratus* d) *Tamarandus indica*
- 3) The male gametophyte of angiosperm is: (Gujranawala Board-2008)
a) Anther b) Microspore c) Germinated pollen grain d) Megaspore
- 4) Heterospory is the production of two types of: (Gujranawala Board-2008)
a) Gametes b) Spores c) Sperms d) Eggs
- 5) Megaspore within megasporangium develops into: (Gujranawala Board-2009)
a) Ovule b) Fruit c) Ovary d) Embryo sac
- 6) Prothallus is: (Gujranawala Board-2009)
a) Sporophyte b) Saprophyte c) Gametophyte d) Seed
- 7) *Cassia fistula* belongs to family: (Gujranawala Board-2010)
a) Solanaceae b) Poaceae c) Casalpiniaceae d) Rosaceae
- 8) *Pyrus* (pear) belongs to the family: (Gujranwala Board-2011)
A) Rosaceae B) Poaceae C) Solanaceae D) Fabaceae
- 9) Which one belongs to Bryopsida? (Gujranwala Board-2012)
A) *Marchentia* B) *Porella* C) *Antheroceros* D) *Polytrichum*
- 11) Sugar is obtained from the juice of: (Gujranwala Board-2012)
A) *Oryza sativa* B) *Hordium vulgare*
C) *Sorghum vulgare officinarum* D) *Saccharum*

Rawalpindi Board

- 1) Bryophytes are generally thought to have evolved from: (Rawalpindi Board-2010)
a) Brown algae b) Red algae c) Green algae d) Golden algae
- 2) Family Rosaceae has ----- genera in Pakistan: (Rawalpindi Board-2010)
a) 27 b) 29 c) 31 d) 33
- 3) Horsetails belong to sub-division: (Rawalpindi Board-2011)
A) Lycopsida B) Psilopsida C) Sphenopsida D) Pteropsida
- 4) Scientific name of Shisham is: (Rawalpindi Board-2012)
A) *Capsicum annum* B) *Dalbergia sisso* C) *Cassia fistula* D) *Zea mays*
- 5) Double fertilization is a special process found in: (Rawalpindi Board-2012)
A) Ferns B) Bryophytes C) Gymnosperms D) Angiosperms

Sargodha Board

- 1) The system of classification which reflects the natural relationship among living organisms and their mode of origin is: (Sargodha Board-2010)
a) Natural b) Phylogenetic c) Artificial d) Modern
- 2) *Marchantia* is an example of: (Sargodha Board-2011)
A) Bryopsida B) Lycopsida C) Hepaticopsida D) Anthocercopsida
- 3) *Clitoria ternatea* is used against: (Sargodha Board-2012)
A) Dog bite B) Insect bite C) Horse bite D) Snake bite

Faislabad Board

- 1) The sporangia with one kind of spores are called: (Faislabad Board-2007)
a) Anthridia b) Homosporous c) Heterosporous d) Diploid embryo
- 2) The male gametophyte of an angiosperm is the: (Faislabad Board-2007)
a) Anther b) Ovule c) Embryo sac d) Germinating pollen grain
- 3) Flowering plants belong to the class: (Faislabad Board-2008)
a) Angiospermeae b) Gymnospermeae c) Filicineae d) None of these
- 4) Which of the plants are said to be amphibians of the plant world? (Faislabad Board-2009)
a) Pteridophytes b) Bryophytes c) Tracheohytes d) Spermatophytes
- 5) In bryophytes the sporophyte generation is: (Faislabad Board-2009)
a) Haploid b) Diploid c) Triploid d) None of these
- 6) Circinate vernation refers to: (Faislabad Board-2010)
a) Leaf venation b) Leaf arrangement of the stem
c) Development pattern of leaf d) Fertilization process
- 7) The leaves of *Cassia alata* are used to cure: (Faislabad Board-2011)
A) Snake bite B) Cough and fever
C) Cough and cold D) Ringworm
- 8) Family of Sweet Pea is: (Faislabad Board 2012)
A) Fabaceae B) Solanaceae C) Rosaceae D) Poaceae
- 9) The term lodicule refers to: (Faislabad Board 2012)

- A) Bract B) Bracteoles C) Perianth D)
Calyx

Chapter No: 10 2 MCQ

Multan Board

- 1) Example of Placental mammal is: (Multan Board-1st Annual 2007)
a) Parcopine b) Bat c) Kangroo d) None of these
- 2) The earliest fossil bird is: (Multan Board-1st Annual 2007)
a) Cotyolosar b) Archeopteryx c) Dinosaur d) None of these
- 3) The body cavity of Nematoda: (Model Paper of Multan Board-2006-2008)
a) Blastocoel b) Haemocoel c) Spongocoel d) Pseudocoelom
- 4) Fish show modification of aquatic breathing system to meet the conditions of terrestrial life by developing lungs: (Model Paper of Multan Board-2006-2008)
a) Hag fish b) Dogfish c) Dipnoi d) Shark
- 5) The animal having both male and female reproductive organs in same individual is called: (Multan Board-1st Annual 2008)
a) Fraternal twin b) Hermaphrodite c) Gonadomorph d) Hybrids
- 6) In annelids excretion takes place by special structures called: (Multan Board-1st Annual 2007)
a) Kidneys b) Malpighian tubules c) Flame cells d) Nephridia
- 7) In animals reproductive organs develop from: (Multan Board-2nd Annual 2008)
a) Endoderm b) Mesoderm c) Ectoderm d) None of these
- 8) Pin worm belongs to Phylum: (Multan Board-2nd Annual 2008)
a) Platyhelminthes b) Aschelminthes c) Annelida d) Arthropoda
- 9) Mammals have evolved from Reptilian ancestor known as: (Multan Board-1st Annual 2009)
a) Cotylosaurs b) Archeopteryx c) Echidna d) Opossum
- 10) Excretory organs in Arthropods are: (Multan Board-1st Annual 2009)
a) Nephridia b) Kidneys c) Malpighian tubules d) All
- 11) The animals which do not have a body cavity have been grouped under: (Multan Board-2nd Annual 2009)
a) Pseudocoelomata b) Coelomata c) Acoelomata d) None of these
- 12) The presence of notochord is the character of: (Multan Board-2nd Annual 2009)
a) Arthropoda b) Echinodermata c) Porifera d) Chordata
- 13) A free swimming trochophore larva is produced during the life cycle of: (Multan Board-1st Annual 2010)
a) Arthropoda b) Porifera c) Coelenterata d) Annelida
- 14) In birds organs of voice is called: (Multan Board-(S) 2010)
A) Syrinx B) Larynx C) Pharynx D) Bronchi
- 15) Parapodia are the organs of locomotion in: (Multan Board-(A) 2011)
A) Leech B) Earthworm C) Planaria D) Neries

- 16) Commercially shark liver oil is extracted and used in medicine as a source of:
(Multan Board-(S) 2011)
A) Fatty acid B) Vitamin A and B C) Vitamin K D) Vitamin A and D
- 17) Marsupium is the characteristic feature of: (Multan Board-(A) 2012)
A) Opossum B) Echnida C) Duckbill Platypus D) Dolphin
- 18) Placoids are absent in: (Multan Board-(A) 2012)
A) Sharks B) Skates C) Rays D) Trout
- 19) The asexual reproduction in Sponges is:
A) Fragmentation B) Budding C) Binary fission D) Multiple fission
- 20) Scorpion belongs to class:
A) Crustacea B) Insecta C) Arachnida D) Myriapoda
- 21) Which one of the following is not included in amniota? (Multan Board-1st Annual 2013)
A) Mammals B) Reptiles C) Amphibians D) Aves
- 22) Which one of the following is a motile coelenterate? (Multan Board-1st Annual 2013)
A) Jelly fish B) *Obelia* C) Sea anemone D) *Hydra*

Bahawalpur Board

- 1) Trypanosoma causes the disease: (Bahawalpur Board-2007)
a) Malaria b) Aids c) Sleeping Sickness d) None of these
- 2) Cuttle fish belongs to: (Bahawalpur Board-2007)
a) Arthropoda b) Echinodermata c) Mollusca d) Pisces
- 3) Left Aortic Arch is the characteristic feature of: (Bahawalpur Board-2008)
a) Amphibians b) Birds c) Reptiles d) Mammals
- 4) *Pheretima posthuma* belongs to phylum: (Bahawalpur Board-2008)
a) Nematoda b) Arthropoda c) Mollusca d) None of these
- 5) Blood of arthropods is: (Bahawalpur Board-2009)
a) Green colored b) Red colored c) Brown colored d) Colorless
- 6) The individual members of coelenterate colony are: (Bahawalpur Board-2009)
a) Polyp b) Medusa c) Zooids d) Gastropods
- 7) In Protostomes, the blastopore forms the: (Bahawalpur Board-2010)
a) Mouth b) Brain c) Anus d) Excretory pore
- 8) In animals, reproductive system develops from: (Bahawalpur Board-2011)
A) Mesenchyma B) Ectoderm
C) Endoderm D) Mesoderm
- 9) Syrinx is organ of voice in: (Bahawalpur Board-2012)
A) Birds B) Reptiles C) Mammals D) Amphibians
- 10) In annelids the organs for excretion are: (Bahawalpur Board-2012)
A) Flame cells B) Protonephridia C) Nephridia D) Nephrons
- 11) The second largest phylum of invertebrates is: (Bahawalpur Board-2013)
A) Annelida B) Mollusca C) Echinodermata D) Platyhelminthes
- 12) Which is the largest group not only of Arthropoda but of all the animal kingdom: (Bahawalpur Board-2013)
A) Class Myriapoda B) Arachnida C) Class Insecta D) Crustacea

Dera Ghazi Khan Board

- 1) Point out the phylum whose all members are marine: (Dera Ghazi Khan Board-2008)
a) Arthropoda b) Echinodermata c) Nematoda d) Protozoa
- 2) In animals, the bodies can be divided into two equal halves in one plane is called: (Dera Ghazi Khan Board-2009)
a) Asymmetrical b) Bilateral c) Radial d) None of these
- 3) In Animals Reproductive System develops from: (Dera Ghazi Khan Board-2009)
a) Endoderm b) Mesoderm c) Ectoderm d) None of these
- 4) Diploblastic animals belong to division: (Dera Ghazi Khan Board-2010)
a) Protozoa b) Parazoa c) Echinodermata d) Radiata
- 5) In Annelida, the organs for excretion are: (Dera Ghazi Khan Board-2011)
A) Nephridia B) Flame cells
C) Protonephridia D) Nephrons
6. Blood of Arthropoda is: (A-2012)
A) Green colored B) Red colored C) Brown colored D) Colorless
7. Syrinx is organ of voice in: (A-2012)
A) Amphibians B) Birds C) Reptiles D) Mammals

Lahore Board

- 1) Sepia belongs to: (Lahore Board-2006)
a) Pisces b) Myriapoda c) Gastropoda d) Cephalopoda
- 2) Blue color respiratory pigment called haemocyanin is present in: (Lahore Board-2007)
a) Arthropoda b) Mollusca c) Annelida d) Echinodermata
- 3) Organ of voice in birds is called: (Lahore Board-2007)
a) Vocal cord b) Larynx c) Syrinx d) Lipids
- 4) The excretory system of arthropods is composed of: (Lahore Board-2008)
a) Malpighian tubules b) Flame cells c) Nephridia d) Nephron
- 5) The pouched mammals are: (Lahore Board-2008)
a) Prototheria b) Metatheria c) Eutheria d) None of these
- 6) Which is not related to other? (Lahore Board-2009)
a) Kiwi b) Eagle c) Crow d) Pigeon
- 7) Shark liver oil is source of: (Lahore Board-2009)
a) Antibiotics b) Food c) Vitamin A and D d) Vitamin B and C
- 8) These animals have large canine: (Lahore Board-2010)
a) Carnivores b) Detritivores c) Herbivores d) Omnivores
- 9) Pseudocoelom is the characteristic feature of the phylum: (Lahore Board-2011)
A) Nematoda B) Annelida C) Mollusca D) Echinodermata
- 10) Common name for *Ancylostoma duodenale* is: (Lahore Board-2012)
A) Hook worm B) Pin worm C) Tape worm D) Earthworm
- 11) Which one of the following is included in tunicate? (Lahore Board-2012)
A) Amphioxus B) Molgula C) Balanoglossus D) Saccoglossus

- 12) The largest invertebrate animal is: (Lahore Board-2012)
A) Octopus B) Squid C) Anodonta D) Oyster

Gujranwala Board

- 1) Round worms belong to: (Gujranawala Board-2004)
a) Mollusca b) Annelida c) Arthropoda d) Nematoda
(Aschelminthes)
- 2) Animals that have their body cavity filled with parenchyma are: (Gujranawala Board-2007)
a) Acoelomates b) Coelomates c) Pseudocoelomates d) Mesoderms
- 3) In animals the bodies can be divided into two equal halves in one plane is called: (Gujranawala Board-2007)
a) Asymmetrical b) Bilateral c) Radial d) None of these
- 4) Mammals became dominant in: (Gujranawala Board-2009)
a) Devonian period b) Silurian period
c) Cenozoic period d) Jurassic period
- 5) Excretory structures in Annelida are: (Gujranawala Board-2009)
a) Malpighian tubules b) Nephrons c) Flame cells d) Nephridia
- 6) The excretory organ in phylum arthropoda is: (Gujranawala Board-2010)
a) Flame cell b) Nephridia c) Kidney d) Malpighian tube
- 7) Most spiders have ----- eyes: (Gujranwala Board-2011)
A) 2 B) 4 C) 6 D) 8
- 8) Balanoglossus and Saccoglossus are common examples of: (Gujranwala Board-2012)
A) Hemichordata B) Echinodermata C) Mollusca D) Annelida
- 9) It is usually accepted by the biologists that mammals have evolved from reptilian ancestors called as: (Gujranwala Board-2012)
A) Cotylosaurs B) Dinosaurs C) Cyclostoma D) Amphibians

Rawalpindi Board

- 1) The phylum which is exclusively marine is: (Rawalpindi Board-2010)
a) Protozoa b) Porifera c) Coelenterata d) Echinodermata
- 2) The number of round worms in a single rotting apple is: (Rawalpindi Board-2010)
a) 85000 b) 8000 c) 95000 d) 90000
- 3) The best commercial sponges found in warm waters of: (Rawalpindi Board-2011)
A) Pacific ocean B) Atlantic-ocean
C) Mediterranean ocean D) Indian ocean
- 4) Mammals have evolved from reptilian ancestor known as: (Rawalpindi Board-2012)
A) Dinosaurs B) Varanope C) Cotylosaurs D) Ichthyosaurus

Sargodha Board

- 1) The animals which are on the boarder line between aquatic and true terrestrial animals belong to: (Sargoha Board-2010)
- a) Reptilia b) Mammalia c) Amphibian d) Aves
- 2) The color of the blood of Molluscans is: (Sargodha Board-2011)

- A) Red B) White C) Green D) Blue
- 3) Blastocoel persists throughout the life in: (Sargodha Board-2012)
A) Porifera B) Cnidaria C) Annelida D) Nematoda
- 4) Dolphin is: (Sargodha Board-2012)
A) Fish B) Bird C) Amphibian D) Mammal

Faislabad Board

- 1) Both male and female reproductive organs are present in the same individual is called:
(Faislabad Board-2007)
a) Hermaphrodite b) Gonozoid c) Polymorphism d) Zooid
- 2) The animals which live in both aquatic and terrestrial conditions are called:
(Faislabad Board-2007)
a) Reptile b) Annelida c) Amphibians d) Aves
- 3) The excretory organs in arthropods are: (Faislabad Board-2008)
a) Flame cells b) Nephridia c) Nephron d) Malpighian tubules
- 4) If larva resembles adult it is: (Faislabad Board-2008)
a) Nymph b) Bipinnaria c) Pupa d) None of these
- 5) *Ascaris lumbricoides* is an intestinal parasite of: (Faislabad Board-2009)
a) Monkeys b) Horse c) Camel d) Man
- 6) Jointed appendages are found in phylum: (Faislabad Board-2009)
a) Mollusca b) Annelida c) Arthropoda d) Cnidaria
- 7) The cleavage in which the line or planes of cleavage are asymmetrical between poles is:
(Faislabad Board-2010)
a) Radial and determinate b) Spiral and determinate
c) Radial indeterminate d) Spiral and pre-determinate
- 8) Mammals became dominant in which period? (Faislabad Board-2011)
A) Cenozoic B) Jurassic
C) Devonian D) Ordovician
- 9) Mammals became dominant in: (Faislabad Board 2012)
A) Mesozoic period B) Cenozoic period
C) Palaeozoic period D) Jurassic period
- 10) In the Protostomes, the blastopore forms the: (Faislabad Board 2012)
A) Mouth B) Brain C) Anus D) Excretory pore

Chapter No: 11 2 MCQ

Multan Board

- 1) In the first step of Citric Acid Cycle, Acetyl CoA reacts with Oxaloacetate to form:
(Multan Board-1st Annual 2007)
a) Pyruvate b) Citrate c) NADH d) ATP
- 2) The process by which a pH gradient comes across the membranes derives the formation of ATP: (Model Paper of Multan Board-2006-2008)
a) Chemiosmosis b) Chemosynthesis
c) Photosynthesis d) Carbon fixation
- 3) Glycolysis: (Multan Board-1st Annual 2008)
a) Produces no ATP.
b) Is same as fermentation.
c) Takes place in Mitochondria.

- d) Produces two molecules of NAD for every glucose molecule processed.
- 4) The number of chloroplasts in each mesophyll cell is about: (Multan Board-2nd Annual 2008)
- a) 20-100 b) 1200 c) Half a million d) 200
- 5) In respiratory chain NADH is oxidized by: (Multan Board-1st Annual 2009)
- a) Cytochrome b b) Coenzyme Q c) Oxygen d) None
- 6) Oxidative phosphorylation takes place in conjunction with the respiratory chain in the inner membrane of: (Multan Board-2nd Annual 2009)
- a) Mitochondrion b) Chloroplast c) Golgy body d) Lysosome
- 7) Oxygen released during photosynthesis comes from: (Multan Board-1st Annual 2010)
- a) Water b) CO₂ c) Glucose d) Chlorophyll
- 8) Synthesis of ATP in the presence of Oxygen is called: (Multan Board-(S) 2010)
- A) Oxidation B) Oxidative Phosphorylation C) Phosphorylation D) Photophosphorylation
- 9) The most abundant protein in chloroplasts and probably most abundant protein on earth is: (Multan Board-(S) 2010)
- A) Hemoglobin B) Rubisco C) Insulin D) Myosin
- 10) A great deal of energy is released during: (Multan Board-(A) 2011)
- A) Respiration B) Reproduction C) Photosynthesis D) Excretion
- 11) The quantitative study of energy relationships and energy conversion in biological systems is: (Multan Board-(A) 2011)
- A) Biotechnology B) Bioenergetics C) Biochemistry D) Biophysics
- 12) The first action spectrum was obtained by Engelmann in 1883 by working on: (Multan Board-(S) 2011)
- A) Spirogyra B) Nostoc C) Chlorella D) Euglena
- 13) Dark reaction takes place in: (Multan Board-(S) 2011)
- A) Matrix of Mitochondria B) Grana of Chloroplast C) Stroma of Chloroplast D) Cytoplasm of Mesophyll
- 14) Iron containing protein is: (Multan Board-(A) 2012)
- A) Cytochrome B) Ferredoxin C) Plastocyanin D) Plastoquinin
- 15) Oxygen produced during photosynthesis comes from: (Model Paper of Multan Board-Session 2012-2013 and onward)
- A) CO₂ B) H₂O C) NADP D) NAD
- 16) The colour of Xanthophylls is: (Model Paper of Multan Board-Session 2012-2013 and onward)
- A) Blue B) Red C) Green D) Yellow
- 17) During respiratory chain coenzyme Q is oxidized by: (Multan Board-1st Annual 2013)
- A) Cytochrome a₃ B) Cytochrome a C) Cytochrome b D) Cytochrome c
- 18) Which one of the following is not concerned with non-cyclic phosphorylation? (Multan Board-1st Annual 2013)
- A) Plastoquinone B) Plastocyanin C) Ferredoxin D) Isocitrate

Bahawalpur Board

- 1) Thylakoid membranes are involved in ATP synthesis by: (Bahawalpur Board-2007)
a) Chemeiosmosis b) Osmosis c) Stroma d) Grana
- 2) The end product of anaerobic respiration in yeast is: (Bahawalpur Board-2008)
a) Pyruvic acid b) Ethyl alcohol c) Lactic acid d) Glucose
- 3) The percentage of CO₂ in air is:
a) 0.02-0.03 % b) 0.03-0.04 % c) 0.4-0.6 % d) 0.05-0.09 %
- 5) Thylakoid membranes are involved in ATP synthesis by: (Bahawalpur Board-2010)
a) Chemosynhsis b) Chemiosmosis
c) Chemoyherapy d) Chemotaxis
- 6) The number of Chloroplast in each of Mesophyll Cell is about: (Bahawalpur Board-2011)
A) 20-200 B) 20-100 C) 10-100 D) 10-100
- 7) Chlorophyll "a" is found in all Photosynthetic Organisms except Photosynthetic: (Bahawalpur Board-2011)
A) Algae B) Bacteria C) Fungi D) Plants
- 8) Glycolysis occurs in: (Bahawalpur Board-2012)
A) Mitochondria B) Ribosomes C) Chloroplast D) Cytosol
- 9) Molecular formula for chlorophyll "b" is: (Bahawalpur Board-2013)
A) C₅₅H₇₂O₅N₁₄Mg B) C₅₅H₇₀O₆N₄Mg
C) C₂₀H₃₉ D) C₆H₁₂O₆
- 10) The breaking of Terminal Phosphate of ATP releases energy about: (Bahawalpur Board-2013)
A) 7.8 Kcal B) 7.00 Kcal C) 7.5 K cal D) 7.3 Kcal

Dera Ghazi Khan Board

- 1) An instruement that measures the relative ability of different pigments to absorb different wave lengths of light is called: (Dera Ghazi Khan Board-2008)
a) Electrocardiogram b) Photometer
c) Potometer d) Spectrophotometer
- 2) Magnesium, an important nutrient ion in plant, is essential component of: (Dera Ghazi Khan Board- 2009)
a) Cell sap b) Protein c) Chlorophyll d) Glucose
- 3) All life on planet earth is powered by: (Dera Ghazi Khan Board-2010)
a) Chemical energy b) Solar energy
c) Electrical energy d) Atomic energy
- 4) Glycolysis occurs in: (Dera Ghazi Khan Board-2011)
A) Mitochondria B) Ribosomes
C) Chloroplasts D) Cytosol
- 5) All life on planet earth is powered by: (Dera Ghazi Khan Board-2011)
A) Chemical Energy B) Solar Energy
C) Atomic Energy D) Electrical Energy
6. Which is not Accessory Pigment? (A-2012)
A) Chlorophyll a B) Chlorophyll b C) Xanthophylls D) Carotene

Lahore Board

- 1) Chlorophyll absorbs mainly wavelengths of: (Lahore Board-2004)

a) Green color b) Yellow color c) Indigo color d) Violet-blue color

2) Which of following is not an accessory pigment? (Lahore Board-2007)

a) Chlorophyll-a b) Chlorophyll-b c) Xynthophyll d) Carotenoid

3) The quantitative study of energy relationship in the biological system is: (LahoreBoard-2008)

a) Biochemistry b) Biotechnology c) Bioenergetics d) Biophysics

4) The break down of terminal phosphate of ATP releases energy about: (Lahore Board-2009)

a) 7.0 k cals b) 7.3 k cals c) 7.5 k cals d) 8.1 k cals

5) The accessory pigments found in chloroplasts are: (Lahore Board-2010)

a) Chlorophyll a b) Chlorophyll c
c) Bacterial chlorophyll d) Chlorophyll b and carotenoids

6) Chlorophyll is found in all photosynthetic organisms except: (Lahore Board-2010)

a) Diatoms b) Red algae c) Bacteria d) Euglena

7) In Mitochondria, the pumping of proton (Chemiosmosis) is across the: (Lahore Board-2011)

A) Outer membrane B) Inner membrane
C) Matrix D) Inter membraneous space

8) The head of chlorophyll molecule is a complex of: (Lahore Board-2011)

A) Benzene ring B) Mg ring C) Pyrrol ring D) Porphyrin ring

9) Light wavelength least absorbed by chlorophylls is: (Lahore Board-2012)

A) Violet B) Blue C) Yellow D) Orange

10) The maximum absorption peaks of length are: (Lahore Board-2012)

A) 450. 640 B) 440, 490 C) 430, 670 D) 550, 650

Gujranwala Board

1) In yeast, the products of anaerobic respiration are: (Gujranawala Board-2004)

a) Methyl alcohol b) Ethyl alcohol c) Lactic acid d) Pyruvic acid

2) Enzymes involved in cellular respiration are found in: (Gujranawala Board-2005)

a) Cytoplasm b) Golgi bodies
c) Mitochondria d) Endoplasmic Reticulum

3) Magnesium, an important nutrient ion in plant, is essential component of: (Gujranawala Board-2007)

a) Cell sap b) Protein c) Chlorophyll d) Glucose

4) Glycolysis is the breakdown of glucose up to the formation of: (Gujranawala Board-2007)

a) Pyruvic acid b) Sulphuric acid c) ATP d) NAD

5) The chemical link between catabolism and anabolism is: (Gujranawala Board-2009)

a) Growth b) ATP c) Respiration d) Transpiration

6) In the first step of the citric acid cycle, acetyl CoA reacts with oxaloacetate to form:

(Gujranawala Board-2010)

a) Pyruvate b) Citrate c) NADH d) ATP

7) The molecular formula of chlorophyll b is: (Gujranawala Board-2010)

a) $C_{55}H_{72}O_5N_4Mg$ b) $C_{56}H_{70}O_5N_3Mg$
c) $C_{55}H_{70}O_6N_4Mg$ d) $C_{50}H_{70}O_5N_3Mg$

- 8) Magnesium of chlorophyll is replaced in hemoglobin by: (Gujranwala Board-2011)
A) Calcium B) Potassium C) Iron D) Phosphorous
- 9) Thylakoid membranes are involved in ATP synthesis by: (Gujranwala Board-2011)
A) Chemosynthesis B) Chemiosmosis
B) Chemotherapy D) Chemotactic
- 10) Porphyrin ring of chlorophyll is made up of four joined smaller: (Gujranwala Board-2012)
A) Pyranore rings B) Pyrrol rings C) Furanore rings D) Phyto rings

Rawalpindi Board

- 1) Haeme portion of haemoglobin contains: (Rawalpindi Board-2010)
a) Mg ++ b) Fe++ c) Fe+++ d) Ca++
- 2) Glycolysis is the break down of: (Rawalpindi Board-2011)
A) Sucrose B) Lactose C) Glucose D) Maltose
- 3) Yeast during fermentation produce CO₂, ATP and: (Rawalpindi Board-2011)
A) Acetyl CoA B) Lactate C) Pyruvate D) Ethyl alcohol
- 4) The only photosynthesizing cells of epidermis of leaf are: (Rawalpindi Board-2012)
A) Cortex cell B) Mesophyll C) Guard cells D) Xylem cells

Sargodha Board

- 1) The mechanism of ATP synthesis during phosphorylation is: (Sargodha Brd-2010)
a) Osmosis b) Chemiosmosis c) Diffusion d) Active transport
- 2) The amount of glucose converted into ATP during Anaerobic Respiration: (Sargodha Board-2011)
A) 4 % B) 3 % C) 2 % D) 1 %
- 3) The compound formed during muscle fatigue is: (Sargodha Board-2011)
A) Alcohol B) Lactic acid C) Hydrochloric acid D) Carbon
- 4) Chlorophyll "a" is: (Sargodha Board-2012)
A) Yellow green B) Blue green C) Orange green D) Violet blue

Faislabad Board

- 1) The water splitting up of photosynthesis that releases oxygen is called: (Faislabad Board-2007)
a) Electron Transport Chain b) Photolysis
c) Chemiosmosis d) Dark reaction
- 2) In the first step of the citric acid cycle, acetyl CoA reacts with oxaloacetate to form: (Faislabad Board-2008)
a) Pyruvate b) Citrate c) ATP d) NADH
- 3) The breaking of terminal phosphate of ATP releases about 7.3 k.cals of: (Faislabad Board-2009)
a) O₂ b) NO₂ c) Heat d) Energy
- 4) The quantitative study of energy relationships and energy conversion in the biological system is: (Faislabad Board-2010)
a) Bioenergetics b) Biophysics c) Biochemistry d) Biotechnology
- 5) Molecular formula for chlorophyll b is: (Faislabad Board-2011)
A) C₅₅H₇₂O₅N₄Mg B) C₅₅H₇₀O₆N₄Mg
C) C₅₅H₇₀O₅N₄Mg D) C₅₅H₇₂O₆N₄Mg

- 6) Calvin cycle is also known as: (Faislabad Board-2011)
 A) C₃ pathway B) C₄ pathway C) C₅ pathway D) C₆ pathway
- 7) Magnesium of chlorophyll is replaced in hemoglobin by: (Faislabad Board 2012)
 A) Calcium B) Potassium C) Iron D) Phosphorous

Chapter No: 12 1 MCQ

Multan Board

- 1) The structure in the mouth that prevents food from the nasal cavities is the:
 (Multan Board-1st Annual 2007)
 a) Epiglottis b) Tongue c) Soft palate d) Pharynx
- 2) Ammonia, a waste product of amino acid metabolism, is converted to in: (Model Paper of Multan Board-2006-2008)
 a) Kidney b) Liver c) Villi d) Pancreas
- 3) A plant requires Nitrogen and Sulphur for its: (Multan Board-1st Annual 2008)
 a) Cell wall b) Enzyme c) Starch deposits d) DNA replication
- 4) Which of the following is not an Omnivore? (Multan Board-2nd Annual 2008)
 a) Crow b) Bear c) Pig d) None of these
- 5) In Cockroach food is temporarily stored in: (Multan Board-1st Annual 2009)
 a) Gizzard b) Oesophagus c) Mesenteron d) Crop
- 6) The loss of appetite due to fear of becoming obese is: (Multan Board-2nd Annual 2009)
 a) Bulimia nervosa b) Anorexia nervosa c) Dyspepsia d) Obesity
- 7) Gall stones are produced in the small bladder due to precipitation of: (Multan Board-1st Annual 2010)
 a) Glucose b) Cholesterol c) Glycerol d) CaCO₃
- 8) The uptake of the diffusible food molecules from the digestive region across the membrane into the cell is called: (Multan Board-(S) 2010)
 A) Ingestion B) Digestion C) Absorption D) Assimilation
- 10) In Hydra the indigestible and partly digested food is removed from endodermal cells into the digestive cavity by: (Multan Board-(S) 2010)
 A) Endocytosis B) Exocytosis C) Osmosis D) Exosmosis
- 11) Some bacteria breakdown the process of dead plants and animals and release: (Multan Board-(A) 2011)
 A) Sulphates B) Phosphates C) Nitrates D) Carbonates
- 12) Biological name of Sundew is: (Multan Board-(S) 2011)
 A) *Dionaea muscipula* B) *Drosera intermedia*
 C) *Sarracenia pupurea* D) *Medicago sativa*
- 13) A neurotic disorder in slightly older girls is: (Multan Board-(A) 2012)
 A) Anorexia nervosa B) Bulimia nervosa C) Dispepsia D) Obesity
- 14) Rodents are: (Model Paper of Multan Board- Session 2012-2013 and onward)

A) Herbivores B) Detritivores C) Carnivores D) Omnivores

15) Which one of the following is not a carnivore? (Multan Board-1st Annual 2013)

A) Cat B) Dog C) Bear D) Tiger

Bahawalpur Board

1) Carbohydrate digesting enzyme is: (Bahawalpur Board-2007)

a) Ptyalin b) Gastrin c) Pepsin d) Lipase

2) Which of these is not a filter feeder? (Bahawalpur Board-2008)

a) Mussel b) Whale c) Hydra d) None of these

3) In man most of the digestion takes place in: (Bahawalpur Board-2009)

a) Stomach b) Small intestine c) Large intestine d) Mouth

4) Parotid Glands are situated in front of the: (Bahawalpur Board-2010)

a) Jaws b) Ears c) Tongue d) Eye

5) In Cockroach food is temporarily stored in: (Bahawalpur Board-2011)

A) Oesophagus B) Crop
C) Gizzard D) Stomach

6) Deficiency of phosphorous causes stunted growth of: (Bahawalpur Board-2012)

A) Shoot B) Root
C) Leaf D) Flower

7) Deficiency of which mineral in soil causes stunted growths of roots in plants: (Bahawalpur Board-2013)

A) Potassium B) Phosphorous C) Nitrogen D) Magnesium

Dera Ghazi Khan Board

1) Owing to nutritional point of view earthworms are: (Dera Ghazi Khan Board-2008)

a) Carnivores b) Detritivores c) Filter feeders d) Herbivores

2) Taking in of complex food is called: (Dera Ghazi Khan Board-2009)

a) Digestion b) Absorption c) Assimilation d) Ingestion

3) The structure that prevents the food from entering the nasal cavities is: (Dera Ghazi Khan Board-2009)

a) Epiglottis b) Soft palate c) Tongue d) Pharynx

4) One of the following plays a slight antiseptic role in the oral cavity: (Dera Ghazi Khan Board-2010)

a) Water b) Mucus c) Sodium bicarbonate d) Amylase

5) Deficiency of phosphorous causes stunted growth of: (Dera Ghazi Khan Board-2011)

A) Shoot B) Root C) Leaf D) Flower

6) HCl is secreted by gastric gland cells of stomach: (A-2012)

A) Oxyntic cells B) Chief cells C) Mucus cells D) Zymogen cells

Lahore Board

1) Liver secretes bile into: (Lahore Board-2006)

- a) Ileum b) Stomach c) Duodenum d) Jejunum
- 2) If the absorption of water and salt does not take place due to infection, drug action or emotional disturbance, a condition known as: (Lahore Board-2007)
- a) Diarrhea b) Vomiting c) Dyspepsis d) Anorexia
- 3) HCl is secreted by gastric gland's cells of stomach: (Lahore Board-2007)
- a) Mucous cells c) Chief cells c) Parietal cells d) Zymogen cells
- 4) The animals which feed on plants are: (Lahore Board-2008)
- a) Detritivores b) Herbivores c) Carnivores d) Omnivores
- 5) Which is not related to gastric juice in humans? (Lahore Board-2009)
- a) Pepsin b) Mucus c) HCl d) Amylase
- 6) These animals have large canine: (Lahore Board-2010)
- a) Carnivores b) Detritivores c) Herbivores d) Omnivores
- 7) The one in which only intracellular digestion occurs: (Lahore Board-2011)
- A) Cockroach B) Planaria C) Amoeba D) Hydra
- 8) Which one of the following is not a carnivore? (Lahore Board-2012)
- A) Cat B) Dog C) Lion D) Deer
- 10) Dipeptides are broken down into amino acids by: (Lahore Board-2012)
- A) Erypsin B) Pepsin C) Trypsin D) Lipase

Gujranwala Board

- 1) Taking in of complex food is called: (Gujranawala Board-2007)
- a) Digestion b) Absorption c) Assimilation d) Ingestion
- 2) The structure in the mouth that prevents the food from entering the nasal cavities is: (Gujranawala Board-2007)
- a) Epiglottis b) Soft palate c) Tongue d) Pharynx
- 3) Oxyntic cells secrete: (Gujranawala Board-2009)
- a) Mucous b) Bicarbonates c) HCl d) Pepsinogen
- 4) Which animal has no need for gall bladder? (Gujranawala Board-2010)
- a) Cat b) Man c) Lion d) Goat
- 5) pH of fresh saliva is about: (Gujranwala Board-2011)
- A) 6.0 B) 7.0 C) 8.0 D) 9.0
- 6) In Hydra, ectodermal cells get food from endodermal cells by: (Gujranwala Board-2011)
- A) Osmosis B) Active transport
C) Facilitated Diffusion D) Diffusion
- 7) Deer and sheep are examples of: (Gujranwala Board-2012)
- A) Herbivores B) Detritivores C) Carnivores D) Omnivores

Rawalpindi Board

- 1) Utilization of products of digestion for production of energy or synthesis of cellular material is: (Rawalpindi Board-2010)
- a) Absorption b) Digestion c) Assimilation d) Egestion

2) Many humans become ill from consuming milk and milk products because they lack:

(Rawalpindi Board-2011)

A) Pepsin B) Renin C) HCl D) Lactase

3) Elimination of undigested matter by an animal is called: (Rawalpindi Board-2012)

a) Ingestion B) Excretion C) Absorption D)

Digestion

Sargodha Board

1) The animals which feed on organic debris are: (Sargodha Board-2010)

a) Herbivores b) Carnivores c) Omnivores d)

Detritivores

2) Digestion in Hydra takes place in: (Sargodha Board-2011)

A) Mouth B) Colon C) Enteron D)

Stomach

3) Intestinal caecae are present in the digestive system of: (Sargodha Board-2011)

A) Hydra B) Planaria C) Cockroach D)

Earthworm

4) The middle part of the small intestine of man is called: (Sargodha Board-2012)

A) Jejunum B) Duodenum C) Ileum D) Colon

Faislabad Board

1) Incomplete or imperfect digestion is called: (Faislabad Board-2007)

a) Food poisoning b) Obesity c) Dyspepsis d)

Ulcer

2) Digestion in Hydra and Planaria takes place within their: (Faislabad Board-2008)

a) Coelom b) Gastrovascular cavity c) Alimentary canal d)

Mouth

3) Constipation is caused by excessive absorption of: (Faislabad Board-2009)

a) Water b) Oxygen c) Blood d) Food

4) Some bacteria break down the proteins of dead plants and animals and release:

(Faislabad

Board-2010)

A) Potassium b) Phosphorous c) Nitrates d) Oxygen

5) Hepatic and pancreatic secretions are also stimulated by a hormone called:

(Faislabad Board-2011)

A) Gastrin

B) Insulin

C) Pepsinogen

D) Secretin

6) pH of fresh saliva is: (Faislabad Board 2012)

A) 6 B) 8 C) 9 D) 10

Chapter No: 13 2 MCQ

Multan Board

1) Respiratory system is most efficient in: (Multan Board-1st Annual 2007)

a) Man b) Bird c) Fish d) Snake

2) Rubisco fixes oxygen instead of CO₂: (Model Paper of Multan Board-2006-2008)

a) Photosynthesis

b) Photorespiration

c) Krebs's cycle

d) Respiration

3) In the lungs of birds instead of alveoli tiny thin walled ducts are present which are

called: (Model Paper of Multan Board-2006-2008)

- a) Tracheoles b) Bronchioles c) Air sacs d) Parabronchi
- 4) The respiratory system is most efficient in: (Multan Board-1st Annual 2008)
a) Man b) Birds c) Fish d) Snake
- 5) Respiratory system is most efficient in: (Multan Board-2nd Annual 2008)
a) Man b) Pigeon c) Snake d) Fish
- 6) The lungs are covered by double layered thin membraneous sacs called: (Multan Board-1st Annual 2009)
a) Diaphragm b) Air sac c) Pleura d) Larynx
- 7) An iron containing protein pigment occuring in muscle fibers is: (Multan Board-2nd Annual 2009)
a) Actin b) Myosin c) Globulin d) Myoglobin
- 8) During photorespiration, Glycin is converted into Serine in the: (Multan Board-1st Annual 2010)
a) Ribosome b) Golgi bodies c) Chloroplasts d) Mitochondria
- 9) In an adult human being when the lungs are fully inflated, the total inside capacity of lungs is about: (Multan Board-(A) 2010)
A) 1.5 litres B) 2.5 litres C) 3.5 litres D) 5.0 litres
- 10) The main sites of exchange of gases in plants are: (Multan Board-(A) 2011)
A) Lenticel B) Cuticles C) Epidermis D) Stomata
- 13) When Diving Mammal dives the rate of heart beat slows down to: (Multan Board-(S) 2011)
A) One fifth B) One sixth C) One eighth D) One tenth
- 14) Lungs of birds have thin walled ducts called: (Multan Board-(S) 012)
A) Alveoli B) Trachea C) Bronchi D) Parabronchi
- 15) The diameter of bronchiole is: (Model Paper of Multan Board- Session 2012-2013 and onward)
A) 3 mm B) 2 mm C) 1 mm D) 0.1 mm
- 16) Percentage of carbon dioxide carried in the form of bicarbonate in plasma is: (Multan Board-1st Annual 2013)
A) 65 B) 70 C) 75 D) 80

Bahawalpur Board

- 1) Respiratory pigments present in muscle cell are: (Bahawalpur Board-2007)
a) Myoglobin b) Globin c) Haemoglobin d) Haemocyanin
- 2) Exhaled air contains ----- CO₂: (Bahawalpur Board-2008)
a) 0.04 % b) 4 % c) .4 % d) 79 %
- 3) Tuberculosis is the disorder of: (Bahawalpur Board-2009)
a) Digestive System b) Circulatory System
c) Excretory System d) Respiratory System
- 4) The main sites of exchange of gases in plants are: (Bahawalpur Board-2010)
a) Stomata b) Hydathodes c) Cuticle d) Petals
- 5) How many molecules of Oxygen can bind with a molecule of Myoglobin? (Bahawalpur Board-2011)
A) One B) Two C) Three D) Four
- 6) Respiratory pigment present in muscles is called: (Bahawalpur Board-2012)
A) Haemoglobin B) Haemocyanin C) Myoglobin D) Globulin

- 7) Thin walled tiny ducts called Parabronchi are found in lungs of: (Bahawalpur Board-2013)
- A) Amphibians B) Birds C) Reptiles D) Mammals

Dera Ghazi Khan Board

- 1) The air is directly supplied through tracheoles to tissue cells: (Dera Ghazi Khan Board-2008)
- a) Birds b) Cockroach c) Earthworm d) Fish
- 2) The floor of chest cavity in man is: (Dera Ghazi Khan Board-2010)
- a) Diaphragm b) Pericardium c) Pleura d) Ribs
- 3) Respiratory pigment present in muscles is: (Dera Ghazi Khan Board-2011)
- A) Hemoglobin B) Haemocyanin C) Myoglobin D) Globulin
- 4) Respiratory System is more efficient in: (Dera Ghazi Khan Board (A)-2012)
- A) Man B) Fish C) Birds D) Frog

Lahore Board

- 1) The pathway in which RuBP is converted into serine is called: (Lahore Board-2007)
- a) Breathing b) Photophosphorylation
c) Photorespiration d) Electron transport chain
- 2) The respiratory organs in Fish are: (Lahore Board-2008)
- a) Lungs b) Air sacs c) Gills d) Tracheae
- 3) In Cockroach when abdomen expands then the spiracles that open are: (Lahore Board-2009)
- a) 4 b) 5 c) 6 d) 8
- 4) How much air is held by lungs when they are fully inflated in man? (Lahore Board-2008)
- a) 5 liters b) 4.5 liters c) 4 liters d) 3.5 liters
- 5) Total inside capacity of lungs of human beings, when fully inflated, is: (Lahore Board-2011)
- A) 5.0 liters B) 7.0 liters C) 7.2 liters D) 7.5 liters
- 6) During photorespiration glycine after its formation diffuses into: (Lahore Board-2012)
- A) Ribosome B) Mitochondria C) Peroxisome D) Glyoxisome
- 7) Breathing rate in man at rest is: (Lahore Board-2012)
- A) 01-15 times /min B) 15-20 times /min
C) 20-25 times /min C) 25-30 times /min

Gujranwala Board

- 1) The respiratory system is most efficient in: (Gujranawala Board-2006)
- a) Man b) Bird c) Fish d) Snake
- 2) The complex cartilaginous structure at the upper end of the trachea is called: (Gujranawala Board-2007)
- a) Larynx b) Alveoli c) Bronchiole d) Pharynx
- 3) Exchange of gases in earthworm mainly occurs through: (Gujranawala Board-2009)
- a) Skin b) Vocal cords c) Lungs d) Gills
- 4) Blood contains oxygen per 100 ml of blood when haemoglobin is 98 % saturated: (Gujranawala Board-2010)
- a) 19.6 ml b) 18.6 ml c) 17.6 ml d) 16.6 ml
- 5) The most efficient and highly modified for gaseous exchange in aquatic animals are: (Gujranwala Board-2011)
- A) Gills B) Lungs C) Spiracles D) Trachea

- 6) A process in which riboluse biphosphate carboxylase / oxygenase (Rubisco) fixes oxygen instead of carbon dioxide is called: (Gujranwala Board-2012)
 A) Respiration B) Photorespiration C) Glycolysis D) Kreb's cycle

Rawalpindi Board

- 1) Haem portion of haemoglobin contains: (Rawalpindi Board-2010)
 a) Mg^{++} b) Fe^{++} c) Fe^{+++} d) Ca^{++}
- 2) Oxygen content of fresh air is about ----- ml per liter as compared with water media: (Rawalpindi Board-2010)
 a) 100 b) 200 c) 400 d) 800
- 3) The total number of exterior paired apertures for respiration in Cockroach is: (Rawalpindi Board-2011)
 A) 10 B) 12 C) 14 D) 20
- 4) Lungs are covered with double membraneous sac called as: (Rawalpindi Board-2012)
 A) Pleura B) Pericardium C) Scortum D) Diaphragm

Sargodha Board

- 1) Respiratory activity which occurs in plants during day time is called: (Sargodha Board-2010)
 a) Photosynthesis b) Photorespiration
 c) Respiration d) Fermentation
- 2) The total lungs capacity for air is: (Sargodha Board-2011)
 A) Two liters B) Three liters C) Four liters D) Five liters
- 3) About 70 % CO_2 is carried as: (Sargodha Board-2012)
 A) CO_2 B) Carboxyhaemoglobin C) Bicarbonate ion D) Carbonte ion

Faislabad Board

- 1) How much air can lungs hold when they are fully inflated? (Faislabad Board-2007)
 a) 5 liters b) 4 liters c) 4.5 liters d) 3.5 liters
- 2) Respiratory pigment present in muscles is called: (Faislabad Board-2008)
 a) Globin b) Haemoglobin c) Haemocyanin d) Myoglobin
- 3) In most birds, the number of air sacs is: (Faislabad Board-2009)
 a) Seven b) Eight c) Nine d) Ten
- 4) Cellular respiration is directly involved in the production of: (Faislabad Board-2010)
 a) Glucose b) Proteins c) Energy d) Aminoacids
- 5) Air space between mesophyll cells of leaves comprise up to: (Faislabad Board-2011)
 A) 20 % B) 30 % C) 40 % D) 50 %
- 6) The most efficient and highly modified for gaseous exchange in aquatic animals are: (Faislabad Board-2012)
 A) Gills B) Lungs C) Spiracles D) Trachea

Chapter No: 14 2 MCQ

Multan Board

- 1) Casparian strips are present in: (Multan Board-1st Annual 2007)
 a) Cortex cells of roots b) Endodermis cells of roots
 c) Pericycle d) Phloem

- 2) Which of the following processes cause substances to move across membranes without the expenditure of cellular energy? (Multan Board-1st Annual 2007)
a) Endocytosis b) Active transport c) Diffusion d) None of these
- 3) The cells of phloem that conduct sugars and organic material throughout the plant are known as: (Multan Board-2nd Annual 2007)
a) Xylem b) Sieve cells c) Stylets d) Guard cells
- 4) Narrowing and hardening of arteries is: (Multan Board-2nd Annual 2007)
a) Antherosclerosis b) Collapsing c) Thickening d) None
- 5) Lymph mostly closely resembles with: (Multan Board-2nd Annual 2007)
a) Blood b) Plasma c) Interstitial fluid d) Urine
- 6) The pathway involving system of adjacent cell walls which is continuous throughout the plant roots: (Model Paper of Multan Board-2006-2008)
a) Casparian strip b) Apoplast c) Symplast d) Plasmodesmata
- 7) Haemoglobin molecule in most cases does not have B chain in it, instead F chain is present: (Model Paper of Multan Board-2006-2008)
a) Oedema b) Leukemia c) Thrombosis d) Thalassaemia
- 8) Lymph mostly closely resembles with: (Multan Board-1st Annual 2008)
a) Blood b) Plasma c) Interstitial fluid d) Urine
- 9) Hydathodes are associated with: (Multan Board-1st Annual 2008)
a) Transpiration b) Guttation c) Conduction d) None of these
- 10) The most abundant compound in blood plasma is: (Multan Board-2nd Annual 2008)
a) NaCl b) Albumin c) Water d) Globulin
- 11) The weight of the blood in our body is about ----- of our body: (Multan Board-1st Annual 2009)
a) $\frac{1}{6}^{\text{th}}$ b) $\frac{1}{5}^{\text{th}}$ c) $\frac{1}{12}^{\text{th}}$ d) $\frac{1}{20}^{\text{th}}$
- 12) The normal pH of blood is: (Multan Board-2nd Annual 2009)
a) 6.0 b) 7.4 c) 8.0 d) 9.0
- 13) The volume of dry seeds may increase upto 200 times after absorbing water by: (Multan Board-1st Annual 2010)
a) Diffusion b) Imbibition c) Osmosis d) Active transport
- 14) One complete heart beat consists of one systole and one diastole lasts for about: (Multan Board-1st Annual 2010)
a) 0.3 Sec b) 0.5 Sec c) 0.8 Sec d) 1.0 Sec
- 15) Thalassaemia is also called ----- anemia: (Multan Board-1st Annual 2010)
a) Cooley's b) Thomas c) Kock's d) Meischer's
- 16) A rye plant less than one meter tall has some 14 million branch roots of a combined length of over: (Multan Board-(S) 2010)
A) 400 km B) 500 km C) 600 km D) 700 km
- 16) In Aphids the honey dew contains 10-25 % dry matter, 90 % or more of which is sucrose. Nitrogen compounds are: (Multan Board-(S) 2010)
A) 1 % B) 4% C) 7 % D) 15 %
- 17) A rye plant less than one meter tall has branch roots: (Multan Board-(A) 2011)
A) 14 million B) 15 million C) 16 million D) 17 million

- 18) The mutual holding of water molecules to form solid chain-like column in xylem is due

to bonds: (Multan Board-(A) 2011)

- A) Ionic B) Hydrogen C) Covalent D) Ester

- 19) A hormone is released by mesophyll cells at high temperature: (Multan Board-(A) 2011)

- A) Amin acids
C) Hydrochloric Acid
- B) Absciscic Acid
D) Sulphuric Acid

- 20) Hydathodes are associated with: (Multan Board-(S) 2011)

- A) Transpiration B) Evaporation C) Guttation D)

Translocation

- 21) The lymph vessels open into: (Multan Board-(S) 2011)

- A) Arteries B) Arterioles C) Capillaries D)

Veins

- 22) The opening and closing of stomata is caused by: (Multan Board-(S) 2011)

- A) Ca^{++} B) Mg^{++} C) K^{+} D) Na^{+}

- 23) The uncontrolled production of white blood cells results in: (Multan Board-(A) 2012)

- A) Leucaemia B) Thalassemia C) Oedema D)

Asthma

- 24) Renal vein brings the impure blood from: (Multan Board-(A) 2012)

- A) Brain B) Kidney C) Lungs D) Liver

- 25) Ions involved in the opening and closing of Stomata is: (Multan Board-(A) 2012)

- A) Sodium B) Calcium C) Potassium D)

Magnesium

- 26) Attraction between water-water molecules in xylem tissue is called: (Multan Board-(A) 2012)

- A) Tention B) Adhesion C) Cohesion D)

Imbibition

- 27) Type of blood cells which stay from 10-20 hours in blood and then enter in tissues and

become macrophages are called: (Multan Board-(A) 2013)

- A) Monocytes B) Lymphocytes C) Basophils D)

Neutrophils

- 28) Single circuit heart is found in: (Multan Board-(A) 2013)

- A) Birds B) Fishes C) Reptiles D) Mammals

Bahawalpur Board

- 1) The shrinkage of protoplast due to exosmosis of water is: (Bahawalpur Board-2007)

- a) Plasmolysis
c) Incipient plasmolysis
- b) Deplasmolysis
d) Osmosis

- 2) Double circuit heart is present: (Bahawalpur Board-2008)

- a) Reptiles b) Birds c) Mammals d) All of these

- 3) The blood pressure is highest in: (Bahawalpur Board-2009)

- a) Vein b) Aorta c) Capillaries d) Arteries

- 4) In arthropods the circulatory system is: (Bahawalpur Board-2009)

- a) Closed b) Open c) Absent d) None of these

- 5) A hormone released by Mesophyll Cells at high temperature is: (Bahawalpur Board-2010)

- a) Absciscic Acid b) Amino Acid c) HCl d) H₂SO₄

- 6) The mutual holding of water molecules to form solid chain-like column in Xylem is due

to: (Bahawalpur Board-2010)

- a) Ionic Bonds b) Covalent Bonds c) Hydrogen Bonds d) Ester

Bonds

- 7) The velocity of sugar movements in phloem in one hour is: (Bahawalpur Board-2010)

- a) 1 meter b) 2 meters c) 3 meters d) 4 meters

- 9) Hydathodes are associated with: (Bahawalpur Board-2011)

- A) Transpiration B) Evaporation
C) Guttation D) Transport of Food
- 10) Plasma cells are produced from: (Bahawalpur Board-2011)
A) Eosinophyll B) Basophills
C) Monocytes D) Lymphocytes
- 11) Casparian strips are present in: (Bahawalpur Board-2012)
A) Cortex B) Endoderm C) Pericycle D) Epidermis
- 12) A serum containing antibodies is called: (Bahawalpur Board-2012)
A) Antigen B) Antibodies C) Lymph D) Antiserum
- 14) The heart which animals never receive Oxygenated Blood: (Bahawalpur Board-2013)
A) Amphibians B) Fishes C) Birds D) Reptiles
- 15) The point at which plasmolysis is just about to happen is called: (Bahawalpur Board-2013)
A) Deplasmolysis B) Osmotic Potential
C) Pressure Potential D) Incipient Plasmolysis

Dera Ghazi Khan Board

- 1) In man, blood from alimentary canal to liver is supplied by: (Dera Ghazi Khan Board-2008)
a) Hepatic portal vein b) Hepatic vein
c) Pulmonary vein d) Renal vein
- 2) Histologically, the arrangement of tissue layer from outside to inside-----
Connective tissue, Circular smooth muscles, Elastic layer and Endothelium is in:
(Dera Ghazi Khan Board-2008)
a) Artery b) Capillary c) Lymph vessel d) Vein
- 3) Average life span of Red Blood Cell is: (Dera Ghazi Khan Board-2009)
a) 2 months b) 3 months c) 6 months d) 4 months
- 4) The most abundant compounds in Blood Plams is: (Dera Ghazi Khan Board-2009)
a) NaCl b) Albumin c) Water d) Globulin
- 5) The lymph vessels empty in: (Dera Ghazi Khan Board-2010)
a) Arteries b) Arterioles c) Capillaries d) Veins
- 6) A serum containing antibodies is called: (Dera Ghazi Khan Board-2010)
a) Antigen b) Antiserum c) Antibody Antigen complex d) Lymph
- 7) The movement of opening and closing of stomata is caused by: (Dera Ghazi Khan Board-2008)
a) Ca^{++} b) Mg^{++} c) K^{+} d) Na^{+}
- 8) Casparian strips are presnt in: (Dera Ghazi Khan Board-2011)
A) Cortex B) Endodermis C) Pericycle D) Epidermis
- 9) A serum containing antibodies is called: (Dera Ghazi Khan Board-2011)
A) Antigen B) Antibiotics C) Lymph D) Antiserum
- 10) The white blood cells which have life span of months or even years are: (Dera Ghazi Khan Board-2011)
A) Lymphocytes B) Monocytes C) Basophils D) Eiosinophils

Lahore Board

- 1) The movement of ions cause opening and closing of stomata by: (Lahore Board-2006)
a) Ca^{++} b) Mg^{++} c) K^{+} d) All of these
- 2) Which of the following artery supplies blood to heart muscles? (Lahore Board-2008)
a) Pulmonary b) Coronary c) Systemic d) None of these
- 3) The shrinkage of protoplast due to exosmosis is: (Lahore Board-2008)
a) Ascent of sap b) Guttation c) Plasmolysis d) Deplasmolysis

- 4) Arteries that supply blood to heart wall are called: (Lahore Board-2009)
a) Femoral b) Coronary c) Cardiac d) Renal
- 5) The roots of Prosopis tree may penetrate deep in the soil upto: (Lahore Board-2008)
a) 5 m b) 25 m c) 50 m d) 70 m
- 6) Shrinkage of protoplasm by exosmosis of water is called: (Lahore Board-2010)
a) Bleeding b) Imbibition c) Plasmolysis d) Turgidity
- 7) Which is not a lymphoid mass? (Lahore Board-2010)
a) Spleen b) Tonsils c) Thymus d) Liver
- 8) The substance that inhibits blood clotting is: (Lahore Board-2011)
A) Histamine B) Sterol C) Antibody D) Heparin
- 9) Plant structures involved in guttation are: (Lahore Board-2011)
A) Lenticels B) Hydathodes C) Stomata D) Cuticles
- 10) One cardiac cycle is completed in: (Lahore Board-2011)
A) 0.3 seconds B) 0.5 seconds C) 0.8 seconds D) 1.2

seconds

- 11) Which one of the following animal has closed blood circulatory system? (Lahore Board-2012)
A) Snail B) Octopus C) Insect D) Spider
- 12) Disorder in which haemoglobin molecule have F chain instead of B chain is known as:

(Lahore Board-2012)

- A) Thalassemia B) Leukaemia C) Oedema D)

Emphysema

- 13) Cerebral infarction is also known as: (Lahore Board-2012)
A) Stroke B) Heart attack C) Hemorrhage D)

Hypertension

- 14) Histamine is produced by: (Lahore Board-2012)
A) Neutrophils B) Eosinophils C) Basophils D)

Monocytes

Gujranwala Board

- 1) Lymph closely resembles with: (Gujranawala Board-2006)
a) Blood b) Plasma c) Interstitial fluid d) Urine
- 2) Hydathodes are associated with: (Gujranawala Board-2007)
a) Transpiration b) Guttation c) Conduction d) None of these
- 3) In Cockroach, blood flows in all these except: (Gujranawala Board-2009)
a) Perivisceral sinus b) Haemocoel
c) Capillaries d) Perineural sinus
- 4) Hydathodes are associated with: (Gujranawala Board-2010)
a) Bleeding b) Transpiration c) Guttation d)

Imbibition

- 5) The open circulatory system in the phylum is: (Gujranawala Board-2010)
a) Mollusca and Arthropoda b) Annelida
c) Cnidaria and Nematoda d) Chordata
- 6) Passive immunity is developed by injecting: (Gujranwala Board-2011)
A) Vaccine B) Serum C) Antiserum D) Antibiotic
- 7) In Cockroach, a pair of lateral openings of each heart chamber is called:

(Gujranwala Board-

2011)

- A) Ostia B) Osculum C) Nephridiopore D)

Medreporite

- 8) 62 % of white blood cells are: (Gujranwala Board-2012)
A) Neuterophils B) Eosinophils C) Basophils D)

Lymphocytes

- 9) Coronary arteries supply blood to the: (Gujranwala Board-201)
A) Head B) Shoulders C) Heart D) Kidneys

Rawalpindi Board

- 1) The active transport of ions is guarded which opens the stomata are: (Rawalpindi Board-2010)
 a) Na^+ b) K^+ c) Mg^{++} d) Ca^{++}
- 2) The agranulocyte white blood cell is: (Rawalpindi Board-2010)
 a) Neutrophil b) Eosinophil c) Monocyte d) Basophil
- 3) Blood platelets are fragments of large cells called: (Rawalpindi Board-2011)
 A) Microkaryocytes B) Erythrocytes
 C) Leucocytes D) Megakaryocytes
- 4) In Earthworm, lateral hearts lie on the lateral side of oesophagus from: (Rawalpindi Board-2011)
 A) 7th to 13th segments B) 8th to 20th segments
 B) 7th to 10th segments D) 8th to 13th segments
- 5) The only photosynthesing cells of epidermis of leaf are: (Rawalpindi Board-2012)
 A) Cortex cells B) Mesophyll C) Guard cells D) Xylem cells
- 6) The valves present in the veins are: (Rawalpindi Board-2012)
 A) Bicuspid B) Tricuspid C) Semilunar D) Aortic

Sargodha Board

- 1) The shrinkage of protoplast due to exosmosis of water is: (Sargodha Board-2010)
 a) Deplasmolysis b) Imbibition
 c) Plasmolysis d) Transpiration
- 2) The number of heart chambers with respect to auricles and ventricles in amphibians is: (Sargodha Board-2010)
 a) 5 b) 4 c) 3 d) 2
- 3) The concentration of Plasma in the blood is: (Sargodha Board-2011)
 A) 45 % B) 50 % C) 55 % D) 60 %
- 4) The exchange of food material takes place through: (Sargodha Board-2011)
 A) Capillary B) Vein C) Artery D) Heart
- 5) The pairs of lateral hearts in Earthworm are: (Sargodha Board-2012)
 A) 4 or 5 B) 5 or 6 C) 6 or 7 D) 7 or 8
- 6) 90 % of total transpiration is: (Sargodha Board-2012)
 A) Cuticular B) Stomatal C) Lenticular D) Stomatal

Faislabad Board

- 1) The movement of water molecules from a region of their higher concentration to a region of their low concentration through a semipermeable is called: (Faislabad Board-2007)
 a) Osmosis b) Diffusion c) Root pressure d) Guttation
- 2) The heart of fish work as: (Faislabad Board-2007)
 a) Double circuit heart b) Single circuit heart
 c) Closed circuit heart d) None of these
- 3) Hydathodes are associated with: (Faislabad Board-2008)
 a) Transpiration b) Conduction c) Guttation d) None of these
- 4) The loss of water vapours through lenticels present in the stem of a: (Faislabad Board-2008)
 a) Lenticular transpiration b) Cutaneous transpiration

- c) Stomatal transpiration d) None of these
- 5) The heart of birds is: (Faislabad Board-2009)
 a) Two chambered b) Three chambered
 c) Four chambered d) Five chambered
- 6) Antibodies are specific i.e. cause the destruction of antigen are manufactured in:
 (Faislabad Board-2009)
 a) Monocyte b) Basophils c) B-lymphocytes d) Granulocytes
- 7) A rye plant less than one meter tall has branch roots about: (Faislabad Board-2010)
 a) 12 million b) 14 million c) 16 million d) 18 million
- 8) Prosopis trees of leguminosae family have maximum depth of their roots:
 (Faislabad Board-2010)
 a) 50 meter b) 60 meter c) 70 meter d) 8 meter
- 9) Active transport is selective and dependent on: (Faislabad Board-2010)
 a) Photosynthesis b) Respiration
 c) Excretion d) Transpiration
- 10) Casparian strips are present in: (Faislabad Board-2011)
 A) Epidermis B) Pericycle C) Endodermis D) Cortex
- 11) The force of attraction among water molecules is: (Faislabad Board-2011)
 A) Adhesion B) Cohesion C) Tensile D) Imbibition
- 12) The valves present in the veins are: (Faislabad Board-2011)
 A) Semilunar B) Tricuspid C) Bicuspid D) Aortic
- 13) Passive immunity is developed by injecting: (Faislabad Board 2012)
 A) Vaccine B) Serum C) Antiserum D) Antibiotics
- 14) In Cockroach, a pair of lateral openings of the heart chamber is called: (Faislabad Board 2012)
 A) Ostia B) Osculum C) Nephridiopore D) Medreporite

Short Questions

From

Multan, and other Boards of Secondary and Higher Secondary Education of Punjab

Chapter No: 1 2 SQs Multan Board

1. Differentiate between Theory and Law. (Multan Board-1st Annual 2007)
2. Differentiate between Deductive Reasoning and Inductive Reasoning. (Model Paper of Multan Board-2006-2008)
3. What is Hydroponic Culture Technique? (Multan Board-1st Annual 2008)
4. Define Population and give its two attributes. (Multan Board-2nd Annual 2008)

5. Define Vaccination. (Multan Board-1st Annual 2009)
6. What are Biopesticides? (Multan Board-2009)
7. What is Integrated Disease Management? (Multan Board-1st Annual 2009)
8. Define Theory and Scientific Law. (Multan Board-2nd Annual 2009)
9. Differentiate between Deductive Reasoning and Inductive Reasoning. (Multan Board-1st Annual 2010)
10. What are Bioelements? (Multan Board-1st Annual 2010)
11. What is Hydroponic Culture Technique? What is its use? (S or 2nd Annual-2010)
12. Define Zoogeography and Parasitology. (S-2010)
13. Define Bioremediation. Give example. (A or 1st Annual-2011)
14. Differentiate organ-system formation between Plants and Animals. (A-2011)
15. Differentiate between Deductive and Inductive Reasoning. (S-2011)
16. What are the disadvantages of Pesticides? (S-2011)
17. Differentiate between Organ and Organelle. (A-2012)
18. Differentiate between Chemo Therapy and Gene Therapy. (A-2012)
19. What is Phyletic Lineage? (A-2013-New)
20. Define Population. (A-2013-Old)
21. Differentiate between Community and Population. (A-2013-New)

Bahawalpur Board

1. What is cloning? (Bahawalpur Board-2007)
2. Define inductive reasoning. (Bahawalpur Board-2007)
3. What is Vaccination? (Bahawalpur Board-2008)
4. Gives names of six Bio-elements which make up 99% of the total human body mass. (Bahawalpur Board-2009)
5. What do you mean by Biological Control? Give examples. (Bahawalpur Board-2009)
6. Differentiate between Population and Community. (Bahawalpur Board-2010)
7. What is Hydroponic Culture Technique? (A-2010)
8. Differentiate between Population and Community. (A-2011)
9. Why is there need to control Environmental Pollution? (A-2011)
10. What is Gene Therapy? (A-2012)
11. What is Biological Control? (A-2012)
12. How is Law different from Theory? (A-2013)
13. What are six bioelements by which 99 % part of human body is formed of? (A-2013)

Dera Ghazi Khan Board

1. What is Pasteurization? (Dera Ghazi Khan Board-2008)
2. What do you mean by Vaccination? (Dera Ghazi Khan Board-2009)
3. How does law differ from theory? (Dera Ghazi Khan Board-2009)
4. Give the names and percentage of six bio-elements that form 90% part of the human body. (Dera Ghazi Khan Board-2010)
5. What is bioremediation? (Dera Ghazi Khan Board-2010)
6. Define Biotechnology. (A-2011)
7. What is Biome? (A-2011)
8. What are Bio-elements? Name Bio-elements which occur in traces in human body (A-2012)
9. How does theory differ from law? (A-2012)
10. Define Immunization and Vaccination. (A-2012)
11. What is difference between population and community? (A-2013)
12. What is radiotherapy and chemotherapy? (A-2013)

Lahore Board

1. What is hydroponic culture technique? (Lahore Board-2006)
2. What is biological control? (Lahore Board-2007)
3. What is community? (Lahore Board-2007)
4. What do you mean by integrated disease management? (Lahore Board-2008)
5. What is biotechnology? (Lahore Board-2008 and 2009)
6. Compare between organelle and organ. (Lahore board-2009)
7. What is theory? (Lahore Board-2009)
8. Differentiate between gene therapy and chemo-therapy. (Lahore Board-2010)
9. What is hydroponic culture technique? (Lahore Board-2010)
10. Define Bio-elements. Name Bio-elements which occur in traces in human body (A-2011)
11. Differentiate between population and community. (A-2011)
12. How and when a hypothesis becomes a theory? (A-2012)
13. What is hydroponic culture technique? Give its uses. (A-2012)
14. Differentiate between chemotherapy and genetherapy. (Group I-A-2013)
15. Differentiate between population and community. (Group I -A-2013)
16. Define biosphere. (Group II-A-2013)
17. Define chemotherapy. Mention its disadvantages. (Group II-A-2013)

Gujranwala Board

1. What is gene-therapy? (Gujranawala Board-2005)
2. Differentiate between Deductive Reasoning and Inductive Reasoning. (Gujranawala Board-2007)
3. Write a short note on cloning. (Gujranawala Board-2007)
4. Write a short note on cloning. (Gujranawala Board-2008)
5. Differentiate between community and ecosystem. (Gujranawala Board-2009)
6. Give four characteristics of living organisms. (Gujranawala Board-2009)
7. Differentiate between bioremediation and biological control. (Gujranawala Board-2010)
8. Compare deductive reasoning and inductive reasoning. (A-2010)
9. Define deductive reasoning. (A-2011)
10. What is hydroponic culture technique? (A-2011)
11. What are bio-elements? Give their proportion in human body. (A-2012)
12. What do you know about Gene Therapy? (A-2012)

Rawalpindi Board

1. How does AIDS spread? (Rawalpindi Board-2010)
2. Differentiate between Population and Community. (Rawalpindi Board-2010)
3. Define biotechnology and microbiology. (A-2011)
4. What important biological work was done in 1997? (A-2011)
5. What is gene therapy? (A-2012)
6. How marine biology differs from fresh water biology? (A-2012)

Sargodha Board

1. Define theory and scientific law. (Sargodha Board-2010)
2. Differentiate between Deductive Reasoning and Inductive Reasoning. (Sargodha Board-2010)
3. Define Bio-elements. Name SIX bio-elements that account for 99 % of the total mass in the human body. (A-2011)
4. What does mean by Phyletic Lineage? (A-2011)

Faislabad Board

1. What do you mean by community? (Faislabad Board-2007)
2. What is Biome? (Faislabad Board-2007)
3. What are Bio-elements? Give their features. (Faislabad Board-2008)
4. Define Cloning. Write its two advantages. (Faislabad Board-2009)
5. Differentiate between Gene Therapy and Chemo Therapy. (Faislabad Board-2009)
6. What are endangered species? Give an example. (Faislabad Board-2010)
7. What is bioremediation? (Faislabad Board-2010)
8. How does AIDS spread? (Rawalpindi Board-2010)
9. What is meant by integrated disease management? (A-2011)
10. Compare theory with law. (A-2011)
11. What is biome? Give example. (A-2012)
12. Differentiate between micro-molecules and macro-molecules. (A-2012)

Chapter No: 2 1 SQ Multan Board

1. Classify lipids. (Multan Board-1st Annual 2007)
2. Write down four differences between RNA and DNA. (Multan Board-1st Annual 2007)
3. Write down functions of Lipids. (Multan Board-1st Annual 2007)
4. How is a peptide bond formed? (Model Paper of Multan Board-2006-2008)
5. Give three functions of protein. (Multan Board-1st Annual 2008)
6. Make structural formula of Ribofuranose. (Multan Board-1st Annual 2008)
7. What is Heat of Vaporization? Give its significance. (Multan Board-2nd Annual 2008)
8. What is a Peptide Bond? How many Peptide Bonds are present in Glycylalanine.
(Multan Board-2nd Annual 2008)
9. Write the function of mRNA. (Multan Board-1st Annual 2009)
10. Differentiate between Starch and Glycogen. (Multan Board-1st Annual 2009)
11. Why are lipid called High Energy Compounds? (Multan Board-2nd Annual 2009)
12. What is NAD abbreviated for? Give its function? (Multan Board-2nd Annual 2009)
13. How much energy is used for the synthesis of 10.0 gm of glucose? (Multan Board-1st Annual 2010)
14. Draw the structural formula of sucrose. (Multan Board-1st Annual 2010)
15. Define Biochemistry. (S-2010)
16. Write the names of Nitrogen bases in Phospholipids. (S-2010)
17. Draw structure of Peptide bond between two Amino Acids. (A-2011)
18. Give four functions of Proteins. (A-2011)
19. How fatty acids of animals differ from plants regarding their structure? (S-2011)
20. Draw the ring shaped Gluco Pyranose. (S-2011)
21. Name macromolecules. Why they form structures of cells? (A-2012)
22. Write any two protective functions of water. (A-2012)
23. What are Pyrimidines and Purines. (A-2013-New)
24. What are Waxes? (A-2013-Old)
25. Define Terpenoids.(A-2013-Old)
26. What are Amino Acids? (A-2013-Old)

Bahawalpur Board

1. What are terpenoids? (Bahawalpur Board-2007)
2. What are conjugated molecules? (Bahawalpur Board-2007)
3. Name different types of Lipids. (Bahawalpur Board-2008)
4. What is Glycogen? (Bahawalpur Board-2008)
5. Define Bio-Chemistry. What is the percentage of water in a Bacterial Cell? (Bahawalpur Board-2009)
6. What are Nucleohistones? (Bahawalpur Board-2009)
7. What is Glycosidic Bond? (A-2010)
8. What is the function of mRNA? (A-2010)
9. Show Peptide Bond between two Amino Acids. (A-2011)
10. What are conjugated molecules? Give an example. (A-2011)
11. What are Glycosidic Bonds? (A-2012)
12. Differentiate between Amylose and Amylopectin. (A-2012)
13. How amino acids differ from one another? (A-2013)

Dera Ghazi Khan Board

1. Differentiate between Fibrous and Globular proteins. (Dera Ghazi Khan Board-2008)
2. Write down the functions of carbohydrates. (Dera Ghazi Khan Board-2008)
3. What are polysaccharides? (Dera Ghazi Khan Board-2009)
4. Write down the general formula for Amino acids. (Dera Ghazi Khan Board-2009)
5. Differentiate between Catabolism and Anabolism. (A-2011)
6. Define heat of vaporization. What is heat of vaporization of water? (A-2011)
7. Differentiate between Glycosidic and Peptide Bonds. (A-2012)
8. Why lipids considered as high energy than carbohydrates? (A-2012)
9. Write a note on Glycogen. (A-2013)

Lahore Board

1. What is an ester? Express it with equation. (Lahore Board-2006)
2. Nucleic acids are polymers of units of which components? (Lahore Board-2007)
3. Make a sketch of general formula of amino acids. (Lahore Board-2007)
4. What is general formula for the amino acid? (Lahore Board-2008)
5. What are anabolic and catabolic reactions? (Lahore Board-2008)
6. Differentiate between Starch and Glycogen. (Lahore Board-2009)
7. Differentiate between fibrous proteins and globular proteins. (Lahore Board-2009)
8. What are conjugated molecules? Give example. (Lahore Board-2010)
9. Show peptide bond between two amino acids. (Lahore Board-2010)
10. What are ester compounds? Give example. (A-2011)
11. What are conjugated molecules? Give examples. (A-2011)
12. Differentiate between amylase and amylopectin starches. (A-2012)
13. How fibrous proteins differ from globular proteins? (A-2012)
14. What do you know about waxes? (A-2012)
15. What are conjugated molecules? Give example. (A-2012)
16. Draw peptide linkage between glycine and alanine. (Group I-A-2013)
17. Write down general formula of amino acid. (Group II-A-2013)

Gujranwala Board

1. Differentiate between Fibrous proteins and Globular proteins. (Gujranawala Board-2006)
2. What is the function of mRNA? (Gujranawala Board-2006)
3. What is specific heat capacity? (Gujranawala Board-2007)
4. How is peptide bond formed? (Gujranawala Board-2007)
5. Draw structural formula of Glycopyranose. (Gujranawala Board-2008)

6. Name the different types of RNA molecules. (Gujranawala Board-2008)
7. Why is the heat capacity of water very high? (Gujranawala Board-2009)
8. What is the percentage of glucose in the blood of a healthy person? (Gujranawala Board-2009)
9. What are conjugated molecules? Give examples. (Gujranawala Board-2010)
10. Give chemical composition of wax. (Gujranawala Board-2010)
11. Compare alpha helix structure and beta-pleated sheet in proteins. (A-2011)
12. Draw the sketch of ATP molecule (nucleotide). (A-2011)
13. Name two reducing sugars. Also mention the name of most familiar disaccharides. (A-2012)
14. How many chains are present in hemoglobin? Also give amino-acids' number in each chain. (A-2012)

Rawalpindi Board

1. Draw the structural formula of Glucopyranose. (Rawalpindi Board-2010)
2. What is the secondary structure of proteins? (A-2011)
3. Differentiate between Anabolic and Catabolic Reactions. (A-2011)
4. What is the importance of ATP? (A-2012)
5. What is NAD? (A-2012)

Sargodha Board

1. Draw structural formula of Glucopyranose. (Sargodha Board-2010)
2. What are Anabolic and Catabolic reactions? (Sargodha Board-2010)
3. Which is the most abundant Carbohydrate in nature? Where is it found in pure form? (A-2011)
4. Why Lipids store double amount of energy as compared to the same amount of any Carbohydrate ? (A-2011)
5. What is Biochemistry? Give its importance. (A-2012)
6. Differentiate between Amylose and Amylopectin Starches. (A-2012)

Faislabad Board

1. How is the peptide bond formed? (Faisalaad Board-2007)
2. What are terpenoids? Give examples. (Faisalaad Board-2008)
3. Define Biochemistry and mention its importance. (Faisalaad Board-2008)
4. Write the general formula of a typical amino acid. (Faisalaad Board-2009)
5. Define Peptide bond and show it between two amino acids. (Faisalaad Board-2009)
6. How is the peptide bond formed? (Faisalaad Board-2010)
7. Give the general formula of amino acid. (Faisalaad Board-2010)
8. What are conjugated molecules? (Faisalaad Board-2010)
9. What is the function of mRNA? (Faisalaad Board-2010)
10. What are terpenoids? Give examples. (A-2011)
11. Write structural formula of Glucose and Fructose. (A-2011)
12. Write down four functions of Proteins. (A-2012)
13. What is conjugated molecule? Give example. (A-2012)

Chapter No: 3 3 SQs Multan Board

1. Define Apoenzyme and Holoenzyme. (Multan Board-1st Annual 2007)
2. How does low and high temperature affect Enzyme activities? (Multan Board-1st Annual 2007)
3. What is prosthetic group? (Multan Board-2nd Annual 2007)
4. How does enzyme concentration affect the rate of reaction? (Model Paper of Multan Board-2006-2008)
5. What is Co-factor? (Multan Board-1st Annual 2008)
6. How irreversible inhibitors inhibit enzyme activity? (Multan Board-1st Annual 2008)
7. Why vitamins are needed in very small amount? (Multan Board-2nd Annual 2008)
8. Define Enzyme and Active Site. (Multan Board-1st Annual 2009)
9. Write the effect of pH on Enzyme Action. (Multan Board-1st Annual 2009)
10. What is Optimum pH? Give Optimum pH of Pepsin. (Multan Board-2nd Annual 2009)
11. Differentiate between Prosthetic group and Coenzyme. (Multan Board-2nd Annual 2009)
12. Define Inhibitors of Enzymes. (Multan Board-1st Annual 2010)
13. How does high temperature affect an Enzyme Activity? (A-2011)
14. What is Induced-Fit Model for Enzyme Activity? (S-2011)
15. Distinguish between Prosthetic group and Coenzyme. (A-2012)
16. What is an activator? (A-2013-New)
17. Differentiate between Apo-enzyme and Holo-enzyme. (A-2013-New)
18. What do you know about Optimum pH? (A-2013-New)
19. Define Activator. (A-2013-Old)

Bahawalpur Board

1. What is the effect of substrate concentration on enzyme action? (Bahawalpur Board-2007)
2. Differentiate between irreversible inhibitors and reversible inhibitors. (Bahawalpur Board-2007)
3. What are inhibitors? (Bahawalpur Board-2008)
4. What is Cofactor? (Bahawalpur Board-2008)
5. Differentiate between Holoenzyme and Apoenzyme. (Bahawalpur Board-2009)
6. What is Active Site? Name its two definite regions. (Bahawalpur Board-2009)
7. State Lock and Key Model of Enzyme Action. (A-2010)
8. What is the effect of temperature on Enzyme Action? (A-2010)
9. The active site of enzyme consists of two regions. Give their name and function. (A-2011)
10. Define Apoenzyme. (A-2012)
11. Differentiate between Apoenzyme and Holoenzyme. (A-2013)
12. Differentiate between Reversible and Irreversible Inhibitors. (A-2013)
13. What is Active Site? (A-2013)

Dera Ghazi Khan Board

1. What is prosthetic group? (Dera Ghazi Khan Board-2008)
2. Name factors affecting rate of enzyme action. (Dera Ghazi Khan Board-2008)
3. How does high temperature affect enzyme activity? (Dera Ghazi Khan Board-2009)
4. What are inhibitors? (Dera Ghazi Khan Board-2009)
5. Differentiate between Apoenzyme and Holoenzyme. (A-2011)
6. How temperature affects the rate of Enzyme Action? (A-2012)
7. What is the role of pH value on enzyme action? (A-2013)
8. What are apoenzymes and holoenzymes? (A-2013)
9. Discuss lock and key model for enzyme action. (A-2013)

Lahore Board

1. What is an optimal value of a factor during reaction? (Lahore Board-2006)
2. How does an enzyme accelerate a metabolic reaction? (Lahore Board-2007)
3. How do irreversible inhibitors check the reaction rate of enzymes? (Lahore Board-2007)
4. What do you mean by optimum pH for the enzyme? (Lahore Board-2008)
5. Differentiate between Lock and Key Model and Induce Fit Model. (Lahore Board-2009)
6. What is the effect of change pH on the working of enzymes? (Lahore Board-2010)
7. Differentiate between activator and prosthetic group. (Lahore Board-2010)
8. Define Active Site of Enzymes. (A-2011)
9. Differentiate between Enzyme and Co-enzyme. (A-2012)
11. What do you mean by induce fit model of enzyme action? (Group I-A-2013)
12. Differentiate between apoenzyme and holoenzyme. (Group I-A-2013)
13. Write down four characteristics of enzyme. (Group I-A-2013)
14. Define Holoenzyme. (Group II-A-2013)
15. State the effect of change in pH on activity of an enzyme. (Group II-A-2013)
16. Differentiate between prosthetic group and co-enzyme. (Group II-A-2013)

Gujranwala Board

1. How does enzyme concentration affect the rate of enzyme action? (Gujranawala Board-2007)
2. Define inhibitors of the enzyme. (Gujranawala Board-2007)
3. Explain Induce Fit Model of Enzyme. (Gujranawala Board-2008)
4. What are competitive inhibitors? (Gujranawala Board-2008)
5. What Koshland proposed in 1959? (Gujranawala Board-2009)
6. What is the effect of extreme changes in pH on enzyme activity? (Gujranawala Board-2009)
7. Why competitive inhibitors are unable to make product? (Gujranawala Board-2010)
8. Write the basic difference between Lock and Key Model and Induce Fit Model of enzyme action. (Gujranawala Board-2010)
9. What is Induced Fit Model of Enzyme Action? (A-2011)
10. Distinguish between Reversible and Irreversible Inhibitors of Enzymes. (A-2012)

Rawalpindi Board

1. Define Co-factor. (A-2010)
2. Differentiate between Apoenzyme and Holoenzyme. (A-2011)
3. Define Competitive and Non-Competitive Inhibitors. (A-2012)

Sargodha Board

1. What are enzyme inhibitors? (Sargodha Board-2010)
2. Give role of pH on the rate of enzyme action. (Sargodha Board-2010)
3. Differentiate between Competitive and Non-Competitive Inhibitors. (A-2011)
4. Give effect of pH on Enzyme Action. (A-2012)

Faislabad Board

1. Define inhibitors of enzyme. (Faisalaad Board-2007)
2. Write about the effect of the temperature on enzyme action. (Faisalaad Board-2007)
3. Differentiate between a Coenzyme and an Activator. Give one example in each case. (Faisalaad Board-2008)
4. Give the role of pH on the rate of enzyme action. (Faisalaad Board-2008)
5. Define an Apoenzyme. (Faisalaad Board-2009)
6. Differentiate between Competitive and Non-competitive inhibitors. (Faisalaad Board-2009)

7. Differentiate between apoenzyme and holoenzyme. (Faisalaad Board-2010)
8. What is the effect of concentration of enzyme on its activity? (Faisalaad Board-2010)
9. How do low and high temperatures respectively affect an enzyme activity? (A-2011)
10. How do Irreversible Inhibitors check the rate of reaction? (A-2012)

Chapter No: 4 2 SQs

Multan Board

1. What are Two Models of membrane structure with respect to location of Lipid and Protein? (A-2007)
2. Give role of Mitochondria in cell. (A-2007)
3. Define Polysome. (S-2007)
4. What are Polysomes? (Model Paper-2006-08)
5. Compare Microtubules with Microfilament. (Model Paper-2006-08)
6. What is the function of Parenchymatous cell? (A-2008)
7. Provide three functions of Smooth Endoplasmic Reticulum. (A-2008)
8. Write a note on Peroxisomes. (S-2008)
9. What are silent features of Cell Theory? (S-2008)
10. Write down the functions of Rough ER. (S-2008)
11. What is Selectively Permeable Membrane? (A-2009)
12. Differentiate between phagocytosis and Pinocytosis? (A-2009)
13. Define Cell Theory. (S-2009)
14. What is Unit Membrane Model of Plasma Membrane? (S-2009)
15. What is Tay Sach's disease? (S-2009)
16. What are Storage Diseases? Name two Storage Diseases in man. (A-2010)
17. Name four proteins present in the cytoskeleton. (A-2010)
18. Write any two silent features of Cell Theory. (A-2010)
19. State silent features of Cell Theory. (S-2010)
20. Give chemical composition Secondary Cell Wall. (S-2010)
21. Give silent features of Cell Theory. (A-2010)
22. Draw the diagram of Fluid Mosaic Model of Plasma Membrane. (A-2010)
23. Differentiate between Pinocytosis and Phagocytosis. (S-2011)
24. What are Peroxisomes? (S-2011)
25. What are Storage Diseases? Name two Storage Diseases in man. (A-2012)
26. Enlist two functions of Smooth Endoplasmic Reticulum. (A-2012)
27. Give silent features of Cell Theory. (A-2013-New)
28. Give two functions of Smooth Endoplasmic Reticulum. (A-2013-New)
29. Give silent features of cell theory. (A-2013-Old)
30. What is Secondary Wall? (A-2013-Old)

Bahawalpur Board

1. What are silent features of Cell Theory? (A-2007)
2. What is the function of Smooth Endoplasmic Reticulum (SER)? (A-2007)
3. How do Cisternae differ from Cristae? (A-2008)
4. Name different types of Plastids. (A-2008)
5. Give the function of Parenchymatous Cells and Sclerenchymatous Cell in Plants. (A-2009)
6. What is Polysome? (A-2009)
7. What is Cytosol? (A-2009)
8. State the function of Rough Endoplasmic Reticulum. (A-2010)
9. Differentiate between Prokaryotic and Eukaryotic Cell. (A-2010)
10. Write the function of Nucleolus. (A-2010)
11. Differentiate between Primary and Secondary Cell Wall. (A-2010)

12. Give three functions of Smooth Endoplasmic Reticulum. (A-2010)
13. Differentiate between Resolution and Magnification of Microscope. (A-2011)
14. What is Tay-Sach's Disease? (A-2011)
15. Define Pinocytosis. (A-2012)
16. What is Murein? (A-2012)
17. What is Stroma? (A-2012)
18. What are Thylakoids? (A-2012)
19. Give Silent features of Cell Theory. (A-2013)
20. What is Stroma in the Chloroplast? Give its functions. (A-2013)

Dera Ghazi Khan Board

1. How does Peroxisome differ from Glyoxysome? (A-2008)
2. What is Endocytosis? (A-2008)
3. What is Endocytosis? (A-2009)
4. State the function of Golgi apparatus. (A-2009)
5. What is Cytoskeleton? (A-2009)
6. What is Endocytosis? (A-2010)
7. Differentiate between Chromoplast and Leucoplast. (A-2010)
8. What is Cell Fractionation? (A-2010)
9. Describe the structure of Nucleolus. (A-2010)
10. Write the main points of Cell Theory? (A-2011)
11. Compare Primary Cell Wall with Secondary Cell Wall. (A-2011)
12. Give silent features of Cell Theory. (A-2012)
13. Differentiate between Phagocytosis and Pinocytosis. (A-2012)
14. What are chromoplasts? Give their function. (A-2013)
15. Give silent features of cell theory. (A-2013)

Lahore Board

1. Write down the silent features of Cell Theory. (A-2006)
2. What is Stroma in a Chloroplast? (A-2007)
3. What is Fluid Mosaic Model of Cell Membrane? (A-2007)
4. What is Lysosome? Give its function. (A-2008)
5. Write the chemical composition of Primary and Secondary Cell Wall. (A-2008)
6. Define Fluid Mosaic Model of Plasma Membrane. (A-2009)
7. Differentiate between Peroxisome and Glyoxysome. (A-2009)
8. What are two subunits in Ribosome and how their attachment is controlled? (A-2009)
9. Give two functions of Cytoplasm. (A-2010)
10. How outer and inner membranes of Mitochondria differ from each other? (A-2010)
11. Compare Microtubules and Microfilaments. (A-2011)
12. Define Semi-permeable Membrane. (A-2011)
13. Who stated "*Omnis Cellula e Cellula*", what does it mean? (A-2012)
14. Who discovered Cell Theory? (A-2012)
15. Differentiate between Phagocytosis and Pinocytosis. (A-2012)
16. Define Resolution of Eye. (A-2012)
17. What is meant by cell fractionation? (Group-I-A-2013)
18. Differentiate between chromoplasts and leucoplasts. (Group-I-A-2013)
19. Give the functional differences between Sclerenchymatous and Parenchymatous cells. (Group-II-A-2013)
20. What is differentially permeable membrane? (Group-II-A-2013)

Gujranwala Board

1. What are Peroxisomes? (A-2006)

2. Differentiate between Chromoplast and Leucoplast. (A-2006)
3. What is Endocytosis? (A-2007)
4. Is there any similarity between Bacterial and Plant Cell Wall? (A-2007)
5. Write note on differentially permeable membranes. (A-2008)
6. Explain the role of Nucleoli in the Cell. (A-2008)
7. What is Stroma? Give its function. (A-2008)
7. Differentiate the chemical compositions of Primary and Secondary Plant Cell Wall. (A-2009)
8. What is Cell Fractionation? (A-2009)
9. Differentiate F1 particles from Cristae. (A-2009)
10. How Mitochondria are Power House of Cell? (A-2010)
11. Write down the role of Centrioles. (A-2010)
12. Write down silent features of Cell Theory. (A-2011)
13. Define Polysomes. (A-2011)
14. Write silent features of Cell Theory. (A-2012)
15. Write a note Cytoskeleton. (A-2012)

Rawalpindi Board

1. Give the silent features of Cell Theory. (A-2010)
2. What is the composition of chromosome? (A-2010)
3. Enlist two functions of Smooth Endoplasmic Reticulum. (A-2011)
4. What are Storage Diseases? Name two Storage Diseases in Man. (A-2011)

Sargodha Board

1. Differentiate between Phagocytosis and Pinocytosis. (A-2010)
2. Give the functions of Smooth Endoplasmic Reticulum. (A-2010)
3. What are Thylakoids? (A-2011)
4. Write down functions of Vacuoles. (A-2011)
5. Define Pinocytosis and Endocytosis. (A-2011)
6. What is the role of Centriole? (A-2012)
7. Differentiate between Endocytosis and Exocytosis. (A-2012)

Faislabad Board

1. Who formulated Cell Theory finally? (A-2007)
2. What are Plastids? (A-2007)
3. Explain the difference between Microtubules and Microfilament. (A-2007)
4. Write down the role of Cell Wall. (A-2008)
5. Differentiate between Chromoplasts and Leucoplasts. (A-2008)
6. Write two main points of Cell Theory. (A-2009)
7. What are Plastids? Write the names of their two types. (A-2009)
8. What is Autophagy? (A-2009)
9. Compile the silent features of Cell Theory. (A-2010)
10. List the features of Prokaryotic Cell. (A-2010)
11. Differentiate between Pinocytosis and Phagocytosis. (A-2011)
12. Write any four functions of Endoplasmic Reticulum. (A-2011)
13. What do you know about intergranum? (A-2012)

Chapter No: 5 1 SQ

Multan Board

1. Differentiate between Retrovirus and Bacteriophage. (A-2007)
2. How has Small Pox been eliminated from world? (A-2007)

3. Give Biological Classification of the Corn. (S-2007)
4. What do you know about the Capsid of Virus? (Model Paper 2006-08)
5. Draw a labeled diagram of HIV. (Model Paper 2006-08)
6. What sort of terminologies was given by E. Chatton? (A-2008)
7. Give lytic cycle of Phage Viruses. (A-2008)
8. What is Binomial Nomenclature? Explain it briefly. (S-2008)
9. Give classification of viruses due to their morphology. (S-2008)
10. What is Prion? (A-2009)
11. Write four symptoms of AIDS. (A-2009)
12. Write the names of Five Kingdoms. (A-2009)
13. What are Prions? Name two diseases they cause. (S-2009)
14. What is Reverse Transcriptase? (S-2009)
15. What is Prophage? (A-2010)
16. What are POCKS? (S-2010)
17. Define the Reverse Transcriptase. (S-2010)
18. Define Binomial Nomenclature. Write the scientific names of any two organisms. (A-2011)
19. Differentiate between Virion and Prion. (A-2011)
20. What is Prophage? (A-2012)
21. What are Prions? (A-2012)
22. Define Binomial Nomenclature. (A-2013-New)
23. Why viruses are called Obligate Parasite? (A-2013-Old)
24. What is Herpes Simplex? (A-2013-Old)

Bahawalpur Board

1. What are Retroviruses? (A-2007)
2. Define Hepatitis. What are its types? (A-2007)
3. Name different types of Virus (A-2008).
4. Define Binomial Nomenclature. (A-2008)
5. What is Poliomyelitis? (A-2009)
6. What is Hepatitis? Which Hepatitis is called Serum Hepatitis? (A-2009)
7. Why virus are said to be Obligate Intracellular Parasite? (A-2010)
8. How are viruses classified? (A-2010)
9. Draw diagram of Bacteriophage and label it. (A-2011)
10. Why some biologists found Two Kingdom Classification unworkable? (A-2011)
11. Differentiate between Retrovirus and Bacteriophage. (A-2012)
12. How has Small Pox been eliminated from the world? (A-2012)
13. Differentiate between Capsids and Capsomeres. (A-2013)

Dera Ghazi Khan Board

1. Define Species. (A-2008)
2. Give preventive measures of AIDS. (A-2008)
3. Give units of Classification of Animals. (A-2009)
4. What was the contribution of Chamberland? (A-2009)
5. State the symptoms of Small Pox. (A-2010)
6. Define Virology. (A-2010)
7. Write the scientific name of Amaltas. (A-2011)
8. Define Binomial Nomenclature. Who devised this system? (A-2011)
9. Define species. Give two examples. (A-2012)
10. What are Oncoviruses? (A-2012)
11. What are prions? (A-2013)

Lahore Board

1. What are Oncoviruses? (A-2006)

2. Define Species. (A-2007)
3. What are Reverse Transcriptases? (A-2007)
4. Write the number of Capsomeres in Capsid of Herpes Virus. (A-2008)
5. What is Binomial Nomenclature? (A-2008)
6. Define Obligate Parasites? (A-2009)
7. Why Paramyxoviruses famous for? (A-2009)
8. Viruses are "Obligate Intracellular Parasites" what is meant by it? (A-2010)
9. What are Pocks? (A-2010)
10. What are Capsids made up of? (A-2011)
11. What are Pocks? (A-2011)
12. Explain briefly Pox Viruses. (A-2012)
13. What are Pocks? (A-2012)
14. Differentiate between Prions and Virions. (A-2012)
15. Define Species. (A-2012)
16. What is reverse transcription? (Group I-A-2013)
17. What is binomial nomenclature? (Group II-A-2013)

Gujranwala Board

1. What is Reverse Transcriptase? (A-2006)
2. What do you know about Obligate Intracellular Parasites? (A-2007)
3. Write a short note on AIDS. (A-2007)
4. State the contribution of Carlous Linnaeus in biology. (A-2008)
5. Define species. (A-2008)
6. Write down family and name of Corn. (A-2009)
7. What is the role of Reverse Transcriptase in Retroviruses? (A-2009)
8. What is Prophage and Lysogeny? (A-2010)
9. What is Binomial Nomenclature? Who did introduce this system? (A-2010)
10. What are naked virions? (A-2011)
11. How Hepatitis A is transmitted? (A-2011)
12. Define Binomial Nomenclature. Who introduced it? (A-2012)
13. Differentiate between lysogeny and induction in bacteria. (A-2012)

Rawalpindi Board

1. Define Species. (A-2010)
2. What are Prions? (A-2010)
3. Write down the biological classification of Corn. (A-2011)
4. What is Induction in life cycle of a Phage? (A-2011)
5. Write down Biological Classification of Corn. (A-2012)
6. What is Binomial Nomenclature? Who devised the system? (A-2012)

Sargodha Board

1. Define Binomial Nomenclature with one example. (A-2010)
2. Write the number of Capsomeres in Capsid of Herpes Virus and Adeno Virus. (A-2010)
3. Differentiate between virulent and non-virulent Phages. (A-2011)
4. What are Retroviruses? Give example. (A-2011)
5. What do you know about Herpes Simplex? (A-2012)
6. What is Lysogenic cycle of Phage? (A-2012)

Faislabad Board

1. What are Prions? (A-2007)
2. How can we prevent from AIDS? (A-2007)
3. Define Species and give two examples. (A-2008)
4. Enlist the Modified Five Kingdom Classification of Margulis and Schwartz. (A-2008)

5. What do you mean by Obligate Parasite? (A-2009)
6. Define Lysogeny and Induction in Bacteriophage. (A-2009)
7. What is Reverse Transcriptase? (A-2010)
8. What is the biological name for Potato? (A-2010)
9. What is Binomial Nomenclature? (A-2011)
10. Differentiate between Lytic Phage and Temperate Phage. (A-2011)
11. What are Prions? (A-2012)
12. Define the term Adsorption. (A-2012)

Chapter No: 6 1 SQ

Multan Board

1. Give chemical composition of Gram Negative and Gram Positive Bacterial Wall. (A-2007)
2. Give postulates of Germ Theory of Disease. (A-2007)
3. List different phases in bacterial growth curve. (Model Paper-2006-08)
4. Write Koch's Postulates. (A-2008)
5. What is Stationary Phase of Bacterial Reproduction? (A-2008)
6. What are Spirilla Bacteria? Give their various forms. (S-2008)
7. What is Mesosome? Give its importance. (S-2008)
8. Give two benefits of Cyanobacteria. (A-2009)
9. What is a Cyst? How it is different from Spore? (A-2009)
10. What are Photosynthetic Bacteria? Give two examples. (S-2009)
11. Define Heterocyst. What is its function? (A-2009)
12. What are useful aspects of Cyanobacteria? (A-2010)
13. Define Water Blooms. What are their effects on animals? (A-2010)
14. What is the Ecological Importance of Bacteria? (A-2010)
15. What are Pili and their functions? (S-2010)
16. Differentiate Antiseptics from Disinfectants. (S-2010)
17. Compare Nucleus with Nucleoid. (A-2011)
18. Enlist the achievements of Louis Pasteur in the field of Microbiology. (S-2011)
19. Differentiate between Microbicidal and Microbistatic effects of Chemicals. (S-2011)
20. Name different taxonomic groups of bacteria on the basis of presence of Flagella, their number and pattern of attachment. (A-2012)
21. Briefly describe economic importance of Cyanobacteria. (A-2012)
22. What are Plasmids and their role in Genetic Engineering? (A-2013-New)
23. Define Atrichous Bacteria. (A-2013-Old)
24. Differentiate between Monotrichous and Lophotrichous Bacteria. (A-2013-Old)

Bahawalpur Board

1. Give a sketch of three types of bacteria. (A-2007)
2. Name the stages of growth and reproduction in Bacteria. (A-2007)
3. What is Binary Fission? (A-2008)
4. What are Hermogonia? (A-2008)
5. Define Germ Theory of Disease. Who formulated it? (A-2009)
6. Name four distinct phases of Bacterial Growth? (A-2009)
7. What are Mesosomes? (A-2010)
8. Differentiate between Gram Positive and Gram Negative Bacteria. (A-2010)
9. State the postulates of Germ Theory of Disease. (A-2010)
10. What are Photosynthetic Bacteria? Give two examples. (A-2010)
11. What are Pili? Write their functions. (A-2010)
12. Distinguish between Cell Walls of Gram Positive and Gram Negative Bacteria. (A-

- 2011)
13. What are the functions of Flagella, Pili, Slime and Capsule in Bacterial cell? (A-2011)
 14. Discuss Reproduction in *Nostoc*. (A-2013)

Dera Ghazi Khan Board

1. State two postulates of Germ Theory of Diseases. (A-2008)
2. Point out different phases in Bacterial Growth. (A-2008)
3. Define Pili and write its functions. (A-2009)
4. What do you know about Plasmid? (A-2009)
5. What are Amphitrichous and Peritrichous Bacteria? (A-2010)
6. Differentiate between Antiseptics and Disinfectants. (A-2010)
7. Write down any two postulates of Germ Theory of Diseases. (A-2011)
8. What are Akinetes? Give their function. (A-2011)
9. Briefly describe the importance of Cyanobacteria. (A-2012)
10. Differentiate between Antiseptics and Disinfectants. (A-2012)
11. Write Ecological Importance of Bacteria. (A-2012)
12. State the postulates of Germ Theory of Disease. (A-2013)

Lahore Board

1. What are Mesosomes and their functions? (A-2006)
2. What is unique about the structure of Bacterial Ribosomes? (A-2007)
3. What is a Trichome in *Nostoc*? (A-2007)
4. What are Pili? Write their functions. (A-2008)
5. Write the difference between Saprophytic and Parasitic Bacteria. (A-2008)
6. Distinguish Antiseptics from Disinfectants. (A-2009)
7. Differentiate Microbicidal from Microbistatic effect of Chemicals on Bacteria. (A-2009)
8. Write down any two postulates of Germ Theory of Disease. (A-2010)
9. What Van Leeuwenhoek is famous for? (A-2010)
10. Differentiate between Spore and Cyst. (A-2011)
11. Write the four stages of growth in Bacteria. (A-2011)
12. What is Mycoplasma? (A-2012)
13. What is Gram Positive Bacteria? (A-2012)
14. Define Nucleoid. (A-2012)
15. Differentiate Microbicidal from Microbistatic effect of Chemical on Bacteria. (A-2012)
16. Write down Medical Importance of Bacteria. (A-2012)
17. What are saprophytic bacteria? (Group I-A-2013)
18. Write down functions of cell wall and flagella in bacterial cell. (Group II-A-2013)

Gujranwala Board

1. What is the Ecological Importance of Bacteria? (A-2006)
2. List the various phases on bacterial growth curve? (A-2007)
3. What do you know about Mesosomes? (A-2007)
4. Write a note on Bacterial Nucleoid. (A-2008)
5. What are Streptobacilli? (A-2008)
6. Differentiate between Antiseptics and Disinfectants. (A-2009)
7. Define Water Blooms. What is their effect on animals? (A-2009)
8. What is Plasmid? Give one of its importances. (A-2010)
9. Give two examples of Chemosynthetic Bacteria. (A-2010)
10. Differentiate between Microbicidal and Microbistatic Chemicals. (A-2011)
11. Differentiate between Photosynthetic and Chemosynthetic Bacteria. (A-2011)

12. Describe Asexual Reproduction in *Nostoc*. (A-2012)
13. Define Saprophytic and Parasitic Bacteria. (A-2012)

Rawalpindi Board

1. What are Plasmid and their importance? (A-2010)
2. Distinguish lag phase from log phase of bacterial growth curve. (A-2010)
3. Distinguish between Spores and Cysts in Bacteria. (A-2011)
4. Differentiate between Lag Phase and Log Phase of growth in Bacteria. (A-2011)
5. What are Plasmids? Give their significance. (A-2012)
6. What are Super Blue Green Algae? Give its importance. (A-2012)

Sargodha Board

1. State the postulates of Germ Theory of Disease. (A-2010)
2. Differentiate Microbicidal from Microbistatic effect of Chemicals on Bacteria. (A-2010)
3. Give four Postulates of Germ Theory of Disease. (A-2011)
4. Enlist four Taxonomic Group of Bacteria on the basis of presence of Flagella and pattern of attachment of Flagella. (A-2011)
5. Write Physical Method to control Bacteria. (A-2012)
6. Write classification of Bacteria on the basis of shapes. (A-2012)
7. Write four postulates of Germ Theory of Disease. (A-2012)
8. Differentiate between Gram Positive from Gram Negative Bacteria. (A-2012)

Faislabad Board

1. What is Tetrad Arrangement in Cocci Bacteria.? (A-2007)
2. Name a bacterium that has no Cell Wall. (A-2007)
3. Give importance of Cyanobacteria. (A-2007)
4. Write down the postulates of Robert Koch about Germ Theory of Disease. (A-2008)
5. Differentiate between Antiseptics and Disinfectants. (A-2008)
6. What is Humus? How do soil inhibiting bacteria absorb it? (A-2009)
7. What is Water Bloom? Give its effect. (A-2009)
8. Name four distinct phases in the bacterial growth curve. (A-2011)
9. What are Lophotrichous Bacteria? (A-2011)
10. What are Mesosomes? (A-2012)
11. What are Microaerophilic Bacteria? (A-2012)

Chapter No: 7 4 SQs

Multan Board

1. Give characters of Kingdom Protista. (A-2007)
2. What are the distinguishing characters of Kingdom Protista? (Module Paper 2006-08)
3. Write down the features of Ciliates. (A-2008)
4. What are Diatoms? (A-2008)
5. Name two important Zooflagellates and what is their disease causing role? (S-2008)
6. Give two differences between Fungus like Protists and Fungi. (A-2009)

7. What is Trichonympha? (A-2009)
8. What are Diatoms? (A-2009)
9. Give role of Tsetse fly as vector in the transmission of a specific disease. (S-2009)
10. What do you know about Oomycetes? (S-2009)
11. Why is it considered that Plants arose from Green Algae? (A-2010)
12. How Algae are different from Plants? (S-2010)
13. What is *Chlorella*? Give its significance. (S-2010)
14. How Fungus like Protists differ from Fungi? (A-2011)
15. Why *Pleomyxa palustris* may be the most primitive of all Eukaryote like forms? (A-2011)
16. Why is *Chlorella* important and what is its habitat? (S-2011)
17. Differentiate between Choanoflagellates and Trichonymphas. (A-2012)
18. How do ciliates differ from other Protozoans? (A-2012)
19. What are Diatoms? Give their importance. (A-2013-New)
20. Differentiate between Fungi and Fungus-like Protists. (A-2013-New)
21. Write the Ecological importance of Dinoflagellates. (A-2013-New)
22. Basically the kingdom protista is defined by exclusion. How? (A-2013-New)
23. Compare Foraminiferan and Actinopod Shells. (A-2013-Old)
24. Enlist two characters of Apicomplexans. (A-2013-Old)

Bahawalpur Board

1. What is Chalk? (A-2007)
2. What are the major characteristics of Kingdom Protista? (A-2007)
3. Which type of locomotion is found Apicomplexans and Amoebas? (A-2008)
4. Give two examples of Chlorophyta. (A-2009)
5. Why Phytophthora is important in human history? (A-2009)
6. How Ciliates differ from other Protozoans? (A-2011)
7. What is Chlorell? Give its significance. (A-2011)
8. What are Kelps? (A-2012)
9. Write two differences between Fungus like Protists and True Fungi (A-2012)
10. Write a note on Diatoms. (A-2013)
11. Write two characters of Slime Molds. (A-2013)
12. What are Zooflagellates? (A-2013)
13. Write down the economic impoatance of Oomycetes. (A-2013)

Dera Ghazi Khan Board

1. Give at least two examples of Dinoflagellates. Which pigments are found in them? (A-2008)
2. How Algae are different from Plants? (A-2008)
3. How do Ciliates differ from other Amebae? (A-2009)
4. Why Euglenoids are placed in Algae and Protozoans? (A-2009)
5. What are Zooflagellates? Give two examples. (A-2010)
6. What is *Chlorella*? Give its uses.(A-2010)
7. Draw the life cycle of *Plasmodium*.(A-2011)
8. On what principles Protists are grouped together? (A-2011)
9. Differentiate between tests of foraminiferans and actinopods. (A-2013)
10. Give two characters of ciliates. (A-2013)
11. What are Kelps? Give its parts. (A-2013)
12. Give the structure of diatoms. (A-2013)

Lahore Board

1. What is Giant Amoeba? (A-2007)
2. What are Foraminiferans and Actinopods? (A-2007)
3. What are Limestone Deposits? How are they formed? (A-2008)
4. Write the two Characteristics of Ciliates. (A-2008)
5. What are Trichonymphas? (A-2009)
6. What is chemical composition of shells of Foraminiferans and Actinopods? (A-2009)
7. Name four major groups of kingdom Protista. (A-2010)
8. What are the functions of Micronucleus and Macronucleus in Ciliates? (A-2010)
9. Write down three characters of Giant Amoeba. (A-2011)
10. Define Dinoflagellates. (A-2012)
11. What are Water Molds? (A-2012)
12. What do you know about giant amoeba? (Group I-A-2013)
13. What is chlorella? (Group I-A-2013)
14. What is conjugation? (Group I-A-2013)
15. Give any two points for the importance of algae. (Group I-A-2013)
16. Write down two similarities and differences between fungi and fungus like protests.
(Group II-A-2013)
17. Write down two characteristics of apicomplexans. (Group II-A-2013)
18. Write two benefits each of algae and fungi. (Group II-A-2013)
19. Write down two characteristics of ciliates. (Group II-A-2013)

Gujranwala Board

1. Differentiate between Diatoms and Dinoflagellates. (A-2006)
2. What are Dinoflagellates? (A-2007)
3. Give two examples of Unicellular Green Algae. (A-2008)
4. Write two characters of Ciliates. (A-2008)
5. What is Giant Amoeba? (A-2009)
6. Why Phytophthora infestans was famous for? (A-2009)
7. What is Red tide? (A-2010)
8. Describe the Nuclei of Ciliates. (A-2010)
9. Write down three characters of Diatoms. (A-2011)
10. What do you know about Green Algae? (A-2012)
11. What do you know about Foraminiferans and Actinopods? (A-2012)

Rawalpindi Board

1. Euglenoids are closely related to Zooflagellates. Justify the statement. (A-2010)
2. Give two examples of Green Algae. (A-2010)
3. Define Thallus. (A-2011)
3. Justify that Euglenoids are close to Zooflagellates. (A-2012)
4. Name Parasitic Amoeba. What disease does it cause? (A-2012)

Sargodha Board

1. What types of pigments are found in Chlorophyta and Rhodophyta? (A-2011)
2. Write down importance of Chlorella. (A-2012)
3. Give scientific name of plasmodial slime mold. Give its importance. (A-2012)

Faislabad Board

1. Explain what are Ciliates? (A-2007)
2. Write two characteristics of Oomycetes. (A-2007)
3. How are Foraminiferans source of Lime Stone? (A-2008)

4. Name a Parasitic Amoeba. What disease does it cause? (A-2008)
5. Give two characters of Ciliates? (A-2009)
6. What are Kelps? Give its parts. (A-2009)
7. What are Kelps? Give parts of thallus of a Kelp. (A-2010)
8. How are Foraminiferans source of Lime Stone? (A-2010)
9. What are Diatoms? Write their Ecological Importance. (A-2011)
10. What is the Commercial Importance of Marine Algae? (A-2012)
11. How do Ciliates differ from other Protozoans? (A-2012)

Chapter No: 8 2 SQs

Multan Board

1. Give features of Zygomycota. (A2007)
2. Write a brief note on Mycorrhizae. (A-2007)
3. Differentiate between Plasmogamy and Karyogamy. (S-2007)
4. Explain what is a Mycelium? (Model Paper 2006-08)
5. Compare Ascus with a Basidium. (Model Paper-2006-08)
6. Give a description of Conidia in *Penicillium*.
7. Give the role of Mycorrhizae. (A-2008)
8. What are Conidiophores? (A-2008)
9. Name and explain briefly two forms of Mycorrhizae. (S-2008)
10. Why are Toadstool called Death Angel? (S-2008)
11. Why are Basidiomycete called Club Fungi (A-2009)
12. What are Obligate Parasites? Give an example of Obligate Parasite from Fungi. (A-2009)
13. Define Histoplasmosis. How is it caused? (S-2009)
14. What is Parasexuality in Fungi? (S-2009)
15. Name most commonly exploited Yeast and explain the common method of asexual reproduction in Yeasts. (A-2010)
16. Name fungus which causes Smuts and what is meant by Smuts in Fungi? (A-2010)
17. What is the difference between Karyogamy and Plasmogamy? (S-2010)
18. Differentiate Rust from Smut. (S-2010)
19. Define Plasmogamy. (A-2011)
20. Compare Lichen with Mycorrhiza. (A-2011)
21. Why Zygomycota is called so? (S-2011)
22. Give two points of the Ecological Importance of Fungi. (S-2011)
23. What is Mycorrhizae? (A-2012)
24. Enlist six Plant Diseases caused due to fungi. (A-2012)
25. What is a Dikaryotic Hypha? (A-2013-New)
26. Differentiate between Ectomycorrhizae and Endomycorrhizae. (A-2013-New)
27. What are Conidia? (A-2013-Old)
28. Differentiate between Septate and Aseptate Hyphae. (A-2013-Old)

Bahawalpur Board

1. What are Saprotrophs? (A-2007)
2. Differentiate between Ectomycorrhizae and Endomycorrhizae. (A-2007)
3. Describe difference between Mycelium and Hyphae. (A-2008)
4. Name and explain one mutualistic symbiotic association. (A-2009)
5. What do you know about Rust and Smut? (A-2009)
6. Differentiate between Ectomycorrhizae and Endomycorrhizae. (A-2010)
7. What is Histoplasmosis? How it is caused? (A-2010)
8. What are Bracket / Shelf Fungi? Give their importance. (A-2011)

9. Give the cause and symptoms of ERGOTISM. (A-2011)
10. What is Aspergillosis? (A-2012)
11. What are Mycorrhizae? (A-2012)
12. Name methods of Asexual Reproduction in Fungi. (A-2013)
13. Differentiate between Septate and Non-Septate Hyphae. (2013)

Dera Ghazi Khan Board

1. Define Parasexuality. (A-2008)
2. State the difference between two types of Mycorrhizae. (A-2008)
3. What are animal like characteristics of Fungi? (A-2009)
4. Differentiate between Aseptate and Septate Hyphae. (A-2009)
5. What is Histoplasmosis? What is its cause? (A-2010)
6. What are Yeasts? (A-2010)
7. What is a Dikaryotic Hypha? (A-2011)
8. Give two points of the Medicinal Importance of Fungi. (A-2011)
9. Write down importance of Yeast. (A-2012)
10. What are Lichens? Give its importance. (A-2012)
11. Differentiate between plasmogamy and karyogamy. (A-2013)
12. Define Parasexuality. (A-2013)

Lahore Board

1. What is the importance of Mycorrhizae for plants? (A-2006)
2. What is Mycelium? (A-2007)
3. What is budding? (A-2007)
4. Differentiate between Plasmogamy and Karyogamy. (A-2008)
5. Name Asexual and Sexual Spores of Ascomycetes. (A-2008)
6. What is Parasexuality? (A-2009)
7. Distinguish Rust from Smut. (A-2009)
8. Explain Parasexuality. (A-2010)
9. How Spores are different from Conidia? (A-2010)
10. Why Non-Septate Hyphae are called Coenocytic Hyphae? (A-2011)
11. Define Parasexuality. (A-2011)
12. Distinguish between Coenocytic and Septate Hyphae. (A-2012)
13. Compare Obligate Parasite with Facultative Parasite. (A-2012)
14. Write structural characters of *Penicillium*. (A-2012)
15. What are Toad Stools? Give example. (A-2012)
16. What is histoplasmosis and what is its cause? (Group I-A-2013)
17. Write two differences between spores and conidia. (Group I-A-2013)
18. Differentiate between Lichens and Mycorrhizae: - (Group II-A-2013)
19. What do you know about the term Haustoria? (Group II-A-2013)

Gujranwala Board

1. Explain what is Fungus? (A-2007)
2. Differentiate between Endomycorrhizae and Ecctomycorrhizae. (A-2007)
3. What is Mycorrhizae? (A-2008)
4. Give names of four Plant Diseases caused by Fungi. (A-2008)
5. Define Nuclear Mitosis in Fungi. (A-2009)
6. What is Parasexuality? (A-2009)
7. What do you know about Nuclear Mitosis? (A-2010)
8. Define Parasexuality. In which group of Fungi this is met with? (A-2010)
9. What are Aflatoxins? (A-2011)
10. Differentiate between Plasmogamy and Karyogamy. (A-2011)
11. Define Bioremediation. What is the role of Lichens during Ecological Succession? (A-

2012)

12. Name any four Antibiotics obtained from Fungi. (A-2012)

Rawalpindi Board

1. What is Nuclear Mitosis? Where it occurs? (A-2010)
2. What is Histoplasmosis? (A-2010)
3. Differentiate between Conidia and Spore. (A-2011)
4. Define Budding and Fragmentation. (A-2011)
5. What is Mycelium? (A-2012)
6. Name Asexual and Sexual Spores of Ascomycetes. (A-2012)

Sargodha Board

1. Explain Parasexuality. (A-2010)
2. What are Lichens? (A-2010)
3. What is Lichen? Give its importance. (A-2011)
4. Write down Importance of Yeast. (A-2011)

Faislabad Board

1. Explain what is Mycorrhizae? (A-2007)
2. What is Histoplasmosis? How does this infection spread? (A-2008)
3. What is Aspergillosis? In which persons is it more common? (A-2009)
4. Differentiate between Septate and Non-Septate Hyphae. (A-2009)
5. What are Haustoria? (A-2009)
6. Distinguish between Conidia and Spores. (A-2010)
7. State the role of an Alga and a Fungus in Lichen. (A-2010)
8. Name soil dwelling Carnivorous Fungus. How does it feed on Soil Nematodes? (A-2011)
9. Name any four Antibiotics obtained from Fungi. (A-2011)
10. What are Dikaryotic Hyphae? (A-2012)
11. How Spores are different from Conidia?

Chapter No: 9 2 SQs

Multan Board

1. Differentiate between Archegonia and Anthredia. (A-2007)
2. Classify Tracheophytes (Only names of different groups). (A-2007)
3. Differentiate Microphyll and Megaphyll leaves. (A-2007)
4. Why are Bryophytes called Amphibious Plants? (A-2007)
5. Differentiate between Homosporous and Heterosporous. (S-2007)
6. Explain the evolution of Megaphyll. (Model Paper-2006-08)
7. Give four differences between Dicots and Monocots. (Model Paper-2006-08)
8. What are the differences between Gymnosperms and Angiosperms? (Model Paper-2006-08)
9. Enlist the features of Spermatophyte. (A-2008)
10. State some characteristics of Dicotyledonous Plants. (A-2008)
11. What is Ovule? (A-2008)
12. Give Importance of *Cassia alata*. Give two points. (A-2009)
13. Give two vegetative characters of Psilopsida. (A-2009)
14. How does Angiosperm differ from Gymnosperm? Give two points. (S-2009)
15. Give Scientific Names of Shisham and Sweet Pea. (S-2009)
16. What is meant by Phylogenetic System of Classification? (A-2010)

17. Why Sphenopsidas called Arthrophytes? (A-2010)
18. Differentiate between Microphylls and Mega phylls. (S-2010)
19. Give two Commercial Applications of family Poaceae. (S-2010)
20. Write biological names of Potato and Tobacco. (S-2010)
21. What is meant by Phylogenetic System of Classification? (A-2011)
22. Differentiate between Leaf Venation and Circinate Vernation. (A-2011)
23. Why Anthoceropsids are advanced than other Bryophytes? (A-2011)
24. Write down scientific names of four plants belonging to family Poaceae. (A-2011)
25. What is Heterogamy? (S-2011)
26. Write two differences between Monocots and Dicots.(S-2011)
27. Write down four adaptations of Bryophytes to live in land habitat. (A-2012)
28. What advance characters are found in Sporophyte of Anthoceropsida? (A-2012)
29. Enlist Botanical Names of four plants included in family Fabaceae. (A-2012)
30. Why the Bryophytes are called "Amphibious of the Plant"? (A-2013-New)
31. What is Circinate Vernation? (A-2013-New)
32. Define Rhizome. (A-2013-Old)
33. Define Overtopping. (A-2013-Old)
34. What is Plannation? (A-2013-Old)

Bahawalpur Board

1. What is the significance of Alternation Generation? (A-2007)
2. What is Overtopping? (A-2007)
3. Differentiate between Dicots and Monocots. (A-2007)
4. Give Botanical names of Wheat and Rice. (A-2008)
5. Differentiate between Calyx and Coroll. (A-2008)
6. How you can define Bryophytes with example? (A-2008)
7. Decribe difference between Ovule and Seed. (A-2008)
8. What do you know about Circinate Vernation? (A-2008)
9. What are the names of two sub-divisions of Bryophytes? (A-2009)
10. Define Circinate Vernation. (A-2009)
11. Give Significance of Alternation of Geneation. (A-2011)
12. Explain Circinate Vernation. (A-2011)
13. Write Vegetative Characters of family Solanaceae. (A-2011)
14. Why Brophytes are called Amphibians of the Plant? (A-2012)
15. What are Gymnosperms? (A-2012)
16. What is Circinate Vernation? (A-2012)
17. Give two differences between Monocots and Dicots. (A-2013)
18. Wrtie the names of two plants belonging to family solanaceae. (A-2013)

Dera Ghazi Khan Board

1. What is Protonema? How does it develop? (A-2008)
2. State the structure of Female Gametophyte of an Angiosperm. (A-2008)
3. What is Double Fertiliztion? (A-2008)
4. Define Double Fertilization. In which group of plants it occur? (A-2009)
5. Write the biological names of Wheat and Rose. (A-2009)
6. Name any two living genera of Psilophyta. (A-2010)
7. What is Double Fertilization? In which group of plants is it present? (A-2010)
8. Compare Homosporous Plants with Heterosporous Plants. (A-2010)
9. Why Bryophytes are said to be Amphibious Plants? (A-2011)
10. What is an Alternation of Generation? (A-2011)
11. Differentiate between Over Topping and Plannation. (A-2011)
12. Why are Anthoceropsida advanced than otherBryophytes? (A-2012)
13. Give three differences between Monocot and Dicot Plants. (A-2012)
14. Define Phylogenetic System of Classification. (A-2012)
15. What are amphibians of the plant world? (A-2013)

16. Differentiate between Homospory and Heterospory. (A-2013)

Lahore Board

1. Write botanical names of these plants: a) Rice b) Tomato (A-2006)
2. Give two characters of Bryophyta. (A-2007)
3. Define Alternation of Generation. (A-2007)
4. Differentiate between Homospory and Heterospory. (A-2007)
5. What is the Significance of Alternation of Generation in Plants? (A-2008)
6. Differentiate between Microphylls and Megaphylls. (A-2008)
7. Write the biological name of Shisham and Sweet Pea. (A-2008)
8. What are Essential and Non-Essential Parts of Flower? (A-2009)
9. What are Arthropyte Plants? Give an example. (A-2009)
10. What is Circinate Vernation? (A-2009)
11. Define Alternation of Generation. What is its Significance? (A-2010)
12. Name the living and extinct representatives of Psilopsida. (A-2010)
13. Quote four examples of Ferns. (A-2010)
14. Define Double Fertilization. Give its importance. (A-2011)
15. Give three differences between Monocot and Dicot Plants. (A-2011)
16. What is Protonema? In which group Bryophytes is it produced? (A-2011)
17. How Overtopping and Webbing occurred in the Evolution of Leaf? (A-2012)
18. Differentiate between Monocots and Dicots in arrangement of Vascular Tissues. (A-2012)
19. In what ways Sporophyte of Bryophyte are different? (A-2012)
20. What is Protonema? In which group of Bryophytes is it produced? (A-2012)
21. Differentiate Leaf Venation and Circinate Vernation. (A-2012)
22. Why are Anthocerosids considered advanced than other Bryophytes? (A-2012)
23. Define the term alternation of generation. (Group I-A-2013)
24. Give literal meanings of terms gymnosperms and angiosperms. (Group I-A-2013)
25. What advance characters are found in the sporophyte of anthropsida? (Group II-A-13)
26. Enlist botanical names of four genera of family poaceae. (Group II-A-13)

Gujranwala Board

1. What are the details of Double Fertilization? Discuss its significance. (A-2006)
2. Write four characters of Bryophytes. (A-2007)
3. What is the significance of Alternation of Generation? (A-2007)
4. Differentiate between Dicots and Monocots. (A-2007)
5. Write down the names of four sub-divisions of Tracheophyta. (A-2008)
6. What is Alternation of Generation? (A-2008)
7. What is Ovule? (A-2008)
8. Define Phylogenetic System of Classification. (A-2009)
9. What is Arthropyte (Horsetail)? (A-2009)
10. Define Circinate Vernation. (A-2009)
11. What is Heterospory? Give an example of a Heterosporous Plant. (A-2010)
12. Name four sub-divisions of Tracheophyta. (A-2010)
13. Define Double Fertilization. (A-2010)
14. Write briefly Double Fertilization. (A-2011)
15. What types of Corolla are found in the flowers of plants belonging to family Fabaceae? (A-2011)
16. Define Pollen Grain. (A-2011)
17. Give four examples of Ferns. (A-2012)
18. Distinguish between Monocots and Dicots. (A-2012)

19. Write down the scientific name and name of family: (A-2012)
i) Tomato ii) Sheesham

Rawalpindi Board

1. Why are Bryophyte called Amphibian Plants? (A-2010)
2. Define Protonema in Bryophytes. (A-2010)
3. Name any two important Ferns. (A-2010)
4. Define Rhizome. (A-2011)
5. What are Amphibious Plants of the world? (A-2011)
6. What is Plannation in Leaf Evolution? (A-2011)
7. What is Protonema? (A-2012)
8. What is Circinate Vernatio? (A-2012)
9. What is the Importance of Heterospory? (A-2012)

Sargodha Board

1. Define Phylogenetic System of Classification. (A-2011)
2. What is Protonema? (A-2011)
3. Define Microphyll and Megaphyll. (A-2011)

Faislabad Board

1. Differentiate between Fertilization and Double Fertilization. (A-2007)
2. List four adaptations of Bryophytes to land habitat. (A-2007)
3. Explain the evolution of Megaphyll. (A-2007)
4. Differentiate between Microphylls and Megaphylls. (A-2008)
5. Why Bryophytes are called Amphibians of the Plant? (A-2008)
6. Differentiate between Bryophytes and Tracheophytes. (A-2008)
7. What are Paraphyses? (A-2009)
8. Name the male and female organs of Bryophytes. (A-2009)
9. What is Webbing in the Evolution of Leaf? (A-2010)
10. Give scientific names of Shisham and Sweet Pea? (A-2010)
11. How does Angiosperm differ from Gymnosperms? Give two points. (A-2010)
12. Write the significance of Alternation of Generation. (A-2011)
13. Define Overtopping and Plannation. (A-2011)
14. Why Shenopsids are called Arthropytes? (A-2011)
15. Why Bryophytes are called Amphibious Plants? (A-2012)
16. What are Arthropyte plants? Give example. (A-2012)

Chapter No: 10 4 SQs Multan Board

1. Write a note on Pseudocoelom. (A-2007)
2. Write a brief note on Metatheria. (A-2007)
3. Give characters of Dipnoi as an ancestor of Amphibians. (A-2007)
4. Write a brief note on Metamorphosis in insects. (A-2007)
5. Define Regeneration. (S-2007)
6. Explain Polymorphism in Coelenterates. (Model Paper-2006-08)
7. Differentiate between Polychaeta and Oligochaeta. (Model Paper-2006-08)
8. What is the importance of Archeopteryx? (Model Paper-2006-08)
9. Comment on Polymorphism. (A-2008)
10. What is Blastocoel? (A-2008)
11. What is Mantle? (A-2008)
12. What is Dipnoi? (A-2008)

13. What do you know about Metamorphosis? (S-2008)
14. Write a note on Beneficial Insects. (S-2008)
15. Write two examples of Metatheria. (S-2008)
16. What are Coral Reefs? (A-2009)
17. Name Classes of Arthropoda. (A-2009)
18. Define Nematocysts and also give their function. (S-2009)
19. What are two functions of Gastrovascular Cavity? (S-2009)
20. Give two characters of sub-class Eutheria. (S-2009)
21. How Annelids are advanced than Nematodes? (Two Points) (A-2010)
22. Name seven classes of sub-phylum Vertebrata. (A-2010)
23. What are the features of Duck Bill Platypus? (A-2010)
24. What is a Spiral and Determinate Cleavage? (S-2010)
25. Distinguish between Amniotes and An Amniotes. (S-2010)
26. Give four examples of Sponges. (S-2010)
27. Define the term Protandrous. (A-2011)
28. Define Coelenteron. (A-2011)
29. Explain Ecdysis. (A-2011)
30. How Crocodilian Heart is different from other Reptiles? (A-2011)
31. Differentiate between Acoelomates and Coelomates. (S-2011)
32. What is meant by Metamorphosis? (S-2011)
33. Why the name Cnidaria is given to Phylum Coelenterata? What is Gastrovascular Cavity? (S-2011)
34. What is Polymorphism? (A-2012)
35. What are three basic characters of Chordates? (A-2012)
36. Write down four differences between Water Habitat and Land Habitat. (A-2012)
37. Define the term Polymorphism. (A-2013-New)
38. What are Hermaphrodite Animals? (A-2013-New)
39. What is Radula? (A-2013-New)
40. Define the term Metamorphosis. (A-2013-New)

Bahawalpur Board

1. Differentiate between Radial and Bilateral Symmetry. (A-2007)
2. What are Acoelomates? (A-2007)
3. What are Coral Reefs? (A-2007)
4. What are the parasitic diseases caused by the phylum Nematoda? (A-2007)
5. Name three subclasses of Mammals with examples. (A-2008)
6. What is the Importance of Archeopteryx? (A-2008)
7. Explain Swim Bladder and its function. (A-2008)
8. Describe the location and function of Nematocysts. (A-2008)
9. What is Metamorphosis? (A-2009)
10. Define Swim Bladder and give its function. (A-2009)
11. What is Archeopteryx? Give two characters only. (A-2009)
12. Define Polymorphism. Give examples. (A-2010)
13. Name the classes of Phylum Chordata. (A-2010)
14. State three Economic Importances of Molluscs. (A-2010)
15. Calcareous Exoskeleton of Echinoderms may be called Endoskeleton. Why? (A-2011)
16. Define the term Metameric Segmentation. (A-2011)
17. What is Schizocoelous Coelom? (A-2011)
18. What is the Importance of Archeopteryx? (A-2012)
19. How Coral Reefs are formed? (A-2012)
20. What is function of Swim Bladder? (A-2012)
21. What are the functions of Placenta? (A-2012)
22. Define Mammals. (A-2012)
23. Define Placenta. (A-2012)
24. What are Protandrous Animals? (A-2013)
25. How Coelomates are different from Acoelomates? (A-2013)

26. Define Blastocoel. (A-2013)
27. What are reptilian features of Archeopteryx? (A-2013)

Dera Ghazi Khan Board

1. Define Ecdysis. (A-2008)
2. What is Diaphragm? (A-2008)
3. What do you mean by Radial Symmetry? Give example. (A-2009)
4. Write about on Coral Reef. (A-2009)
5. Define Infestation. (A-2009)
6. Name any two beneficial insects and their products. (A-2010)
7. Name any two types of Larvae found in Echinoderms showing Bilateral Symmetry. (A-2010)
8. What is Syrinx? Where is it situated? (A-2010)
9. What are Reptilian Features of Archeopteryx? (A-2011)
10. Name seven classes of the sub-phylum Vertebrata. (A-2011)
11. What are fundamental features of Insects? (A-2011)
12. What is radial and bilateral symmetry in animals? (A-2013)
13. What is importance of sponges? (A-2013)
14. Give two examples of class oligochaeta. (A-2013)
15. Name two sub-classes of mammals with examples. (A-2013)

Lahore Board

1. Why Annelids and Arthropods are considered having same origin? (A-2006)
2. Differentiate between Diploblastic Triploblastic Organisms. (A-2007)
3. What is Coelom? (A-2007)
4. What is Hermaphrodite? (A-2007)
5. What is the Economic Importance of Molluscs? (A-2007)
6. What are Diploblastic Animals? (A-2008)
7. Write the four names of Harmful Insects. (A-2008)
8. Define Placenta. What is its function? (A-2008)
9. Differentiate between Cold Blooded and Warm Blooded Animals. (A-2008)
10. What is Hermaphrodite animal? Give one example. (A-2009)
11. What is Polymorphism? (A-2009)
12. What are the Reptilian Features of Archepteryx? (A-2010)
13. What is a Gastrovascular Cavity? (A-2010)
14. Give the Economic Importance of Sharks. (A-2010)
15. Differentiate between Spiral and Radial Cleavage. (A-2011)
16. What is Syrinx? Where it is situated? (A-2011)
17. Write down Four Parasitic Adaptations of Flatworms. (A-2011)
18. What is Operculum? (A-2011)
19. What is Operculum? (A-2012)
20. Differentiate between Spiral and Radial Cleavage. (A-2012)
21. Write down Four Parasitic Adaptations in Flatworms. (A-2012)
22. Why Echinoderm places close to Chordates? (A-2012)
23. Define Polymorphism. (Group I-A-2013)
24. Differentiate between parazoa and eumetazoa. (Group I-A-2013)
25. Write down two characteristics of osteichthyes. (Group I-A-2013)
26. Write down two characteristics of amphibians. (Group I-A-2013)
27. Describe briefly skeleton of sponges. (Group II-A-2013)
28. What are gemmules? Give their function. (Group II-A-2013)
29. Write down two adaptations for parasitic mode of life in platyhelminthes. (Group II-A-2013)
30. Describe briefly two harmful insects. (Group II-A-2013)

Gujranwala Board

1. Give two characters of Chordates. (A-2006)
2. What is Polymorphism? (A-2007)
3. What is the difference between Acoelomata and Coelomata? (A-2007)
4. Give four characters of phylum Nematoda. (A-2007)
5. Name the Phylum of Starfish. (A-2007)
6. What are Triploblastic Animals? (A-2008)
7. Give two examples of phylum Platyhelminthis. (A-2008)
8. Write down two characters of phylum Annelida. (A-2008)
9. Give names of any two Sub-classes of Mammalian. (A-2008)
10. Differentiate between Acrania and Craniata. (A-2009)
11. Differentiate between Schizocoelous and Enterocoelous. (A-2009)
12. Assign following animals into their Respective Phyla. (A-2010)
 - i. Tapeworm
 - ii. Octopus
13. Give two examples of sub-class Metatheria. (A-2010)
14. Differentiate between Infestation and Disinfestation. (A-2010)
15. Differentiate Corals from Coral Reef. (A-2011)
16. Summarize Importance of Sharks. (A-2011)
17. Write down Affinities of Echinoderms with Hemichordates. (A-2011)
18. Differentiate between Nerve Cord and Notochord. (A-2012)
19. Give examples of Metatheria. (A-2012)
20. What is Metamorphosis? (A-2012)

Rawalpindi Board

1. Distinguish Coelom from Pseudocoelom. (A-2010)
2. Give two Functions of Placenta. (A-2010)
3. Define Coral Reefs. (A-2011)
4. Why Reptiles became extinct? (A-2011)
5. Why the name Cnidaria has been given to Coelenterates? (A-2011)
6. Differentiate Pseudocoelomate and Coelomate. (A-2012)
7. What are Tunicates? (A-2012)
8. Write a note on Useful Insects. (A-2012)

Sargodha Board

1. Differentiate between Radial and Bilateral Symmetry. (A-2010)
2. Discuss the Importance of Sponges. (A-2010)
3. What is meant by Disinfestation? (A-2010)
4. Differentiate between Amniotes and an Amniotes. (A-2011)
5. Define Polymorphism. What type of Polymorphism is found in Obelia? (A-2011)
6. Differentiate between Parazoa and Eumetazoa. (A-2011)

Faislabad Board

1. Differentiate between Acoelomata and Coelomata. (A-2007)
2. Give four characteristics of Phylum Echinodermata. (A-2007)
3. What is Polymorphism? (A-2007)
4. What are the functions of Placenta? (A-2007)
5. Distinguish between Diploblastic and Triploblastic Animals. (A-2007)
6. What are Parazoa and Metazoa? (A-2008)
7. What are Nematocysts? Give their function. (A-2008)
8. Give the names of Four Harmful Insects.c (A-2008)
9. What is Metameric Segemntation? In which phlym is it present? (A-2008)

10. Differentiate between Diploblastic and Triploblastic Organization. (A-2009)
11. What are Harmful Insects? Give two names. (A-2009)
12. Give two Commercial Importances of Sharks. (A-2009)
13. What is Polymorphism? Give example. (A-2010)
14. Write down four characteristics of Mammals. (A-2010)
15. What is Metamorphosis? (A-2010)
16. Define Hermaphrodite. Give example from animals. (A-2011)
17. Differentiate between Nerve Cord and Notochord. (A-2011)
18. Compare Infestation and Disinfestation. (A-2011)
19. Define Gastrovascular Cavity in Coelenterates. (A-2011)
20. Differentiate between Acoelomata and Coelomata. (A-2012)
21. What is Notochord? State its function. (A-2012)
22. Name the bones of Mammalian Ear. Give their number. (A-2012)

Chapter No: 11 2 SQs

Multan Board

1. What are the Products of Light Reactions? (A-2007)
2. Define Chemiosmosis. (S-2007)
3. What is meant by Compensation Point? (Model Paper-2006-08)
4. Compare Aerobic and Anaerobic Respiration. (Model Paper-2006-08)
5. What is meant by Preparatory and Oxidative Phase of Glycolysis? (A-2008)
6. What is the End Product of Anaerobic Respiration in Human? (A-2008)
7. Where do the reactions of TCA cycle occur? (A-2008)
8. What is Compensation Point? (A-2008)
9. What is Action Spectrum? (S-2008)
10. Write down the formula of Chlorophyll "a". (S-2008)
11. What is Chemiosmosis? (S-2008)
12. What do you know about Absorption Spectrum? (A-2009)
13. Give the Molecular Formula of Chlorophyll "a". (A-2009)
14. What is Lactic Acid Fermentation? Give its reaction. (A-2009)
15. Differentiate between Chlorophyll a and b with the help of chemical formula. (S-2009)
16. Define Chemiosmosis (S-2009)
17. What are Cytochromes? (S-2009)
18. Differentiate between Absorption Spectrum and Action Spectrum. (A-2010)
19. What is meant by Compensation Point? (A-2010)
20. Define Chemiosmosis. (A-2010)
21. What is meant by Photolysis? (S-2010)
22. Define Photosynthesis with equation. (S-2010)
23. Why Calvin Benson Cycle is known as C-3 Pathway? (S-2010)
24. Differentiate between Absorption and Action Spectrum. (A-2011)
25. What is Cyclic Phosphorylation? Give cause of its occurrence. (A-2011)
26. Define Bioenergetics. (S-2011)
27. What stands for RUBISCO? (S-2011)
28. Define Photosynthesis along with equation. (S-2011)
29. Differentiate between Lactic Acid and Alcoholic Fermentation. (S-2011)
30. Name the process which acts as energy-capturing and energy releasing. (A-2012)
31. What are Accessory Pigments? State their role. (A-2012)
32. Differentiate between Chlorophyll "a" and Chlorophyll "b" by writing molecular formulae of both. (A-2012)
33. Differentiate between Absorption Spectrum and Action Spectrum. (A-2013-New)
34. What is the role of Accessory Pigments in Light Absorption? (A-2013-New)
35. What is an Aerobic Respiration? (A-2013-Old)
36. What is ATP? Sketch its formula. (A-2013-Old)

Bahawalpur Board

1. What are Carotenoids? (A-2007)
2. What is the Importance of Adenosine Triphosphate (ATP)? (A-2007)
3. What are the End Products of Light Reactions? Give their role. (A-2008)
4. Compare and contrast the Action Spectrum and Absorption Spectrum. (A-2008)
5. What is Bioenergetics? Explain briefly. (A-2008)
6. What are Accessory Pigments? (A-2009)
7. Define Aerobic and Anaerobic Respiration. (A-2009)
8. What is Compensation Point? (A-2009)
9. Enlist four stages of Cellular Respiration. Where do they occur? (A-2011)
10. Why Photosynthesis is called Redox Process? Illustrate with equation. (A-2011)
11. Why do plants appear green? (A-2012)
12. Define Bioenergetics. (A-2012)
13. What are Thylakoids? (A-2012)
14. Define Stroma. (A-2012)
15. Define Non-Cyclic Phosphorylation. (A-2012)
16. What is Absorption Spectrum? (A-2012)
17. Differentiate between Light Dependent and Light Independent Reactions. (A-2013)
18. Write down the equation of Alcoholic Fermentation in Anaerobic Respiration. (A-2013)

Dera Ghazi Khan Board

1. What is Compensation Point? Describe briefly. (A-2008)
2. Compare Chlorophyll "a" and Chlorophyll "b" (A-2008)
3. What are Photo Systems? Differentiate between PS-I and PS-II. (A-2008)
4. Define Bioenergetics. On what principles biological energy transformation occurs? (A-2009)
5. What is Calvin Cycle? Give the names of its three phases. (A-2009)
6. What is Compensation Point? (A-2009)
7. What are the roles of Antenna Complex and Reaction Centre of Photo System in Thylakoid Membrane? (A-2010)
8. What are the stages of Cellular Respiration? (A-2010)
9. Name the phases of Calvin Cycle. (A-2010)
10. How much energy is released by the break down of ATP molecule? (A-2010)
11. What is Compensation Point? (A-2011)
12. Write the Molecular Formulae for Chlorophyll a and Chlorophyll b. (A-2011)
13. What do you know about Action Spectrum? (A-2013)
14. What is Z scheme? Why is it called so? (A-2013)

Lahore Board

1. Define Chemiosmosis. (A-2006)
2. Define Photosynthesis. (A-2007)
3. What is meant by Bacteriochlorophylls? (A-2007)
4. What is Action Spectrum? (A-2008)
5. What do you know about Rubisco? (A-2008)
6. Define Photophosphorylation. (A-2008)
7. Point out the role of Mitochondria in Respiration. (A-2009)
8. What do you know about Action Spectrum? (A-2009)
9. Name the Processes which act as Energy Capturing and Energy Releasing. (A-2010)
10. What are the main parts of a Chlorophyll Molecule and what is Porphyrin Ring? (A-2010)
11. What are Accessory Pigments? State their Role. (A-2011)

12. What is Rubisc? What is its function? (A-2011)
13. Name the Processes which act as Energy Capturing and Energy Releasing. (A-2011)
14. Write a note on Lactic Acid Fermentation. (A-2012)
15. Write molecular formulae of Chl.a and Chl.b. (A-2012)
16. Differentiate between Photo Phosphorylation and Oxidative Phosphorylation. (A-2012)
17. What is meant by action spectrum? (Group I-A-2013)
18. What is stroma? (Group I-A-2013)
19. Define chemiosmosis. (Group II-A-2013)
20. Differentiate between alcoholic fermentation and lactic acid fermentation. (Group II-A-2013)

Gujranwala Board

1. Differentiate between Absorption Spectrum and Action Spectrum. (A-2006)
2. Define Phtosynthesis with equation. (A-2007)
3. What is the difference between Action Spectrum and Absorption Spectrum? (A-2007)
4. Define Bioenergetics. (A-2008)
5. What is Stroma? Give its functions. (A-2008)
6. What is Antenna Complex? (A-2008)
7. Differentiate Absorption Spectrum from Action Spectrum (A-2009)
8. What are Photosystems and their types? (A-2009)
9. What is Bioenergetics? (A-2009)
10. Give the Chemical Equation of Alcoholic Fermentation. (A-2010)
11. What is Compensation Point? (A-2010)
12. What is the Net Production of ATP during Glycolysis? (A-2010)
13. Differentiate between Action Spectrum and Absorption Spectrum. (A-2011)
14. What is Spectrophotometer? Write its uses. (A-2011)

Rawalpindi Board

1. Differentiate between Photolysis and Photophosphorylation. (A-2010)
2. Give the function of Phytol Tail in Chlorophyll molecule. (A-2010)
3. Define Bioenergetics. (A-2010)
4. What is Photosynthesis? (A-2010)
5. Distinguish between Photosystem I and Photosystem II. (A-2011)
6. Give the chemical composition of Alcoholic and Lactic Acid Fermentations. (A-2011)
7. Give complete names for the abbreviations NAD and FAD. (A-2011)
8. Define Absorption Spectrum and Action Spectrum. (A-2012)
9. What is Photosystem? (A-2012)
10. Differentiate between Photo Phosphrylation and Oxidative Phosphorylation. (A-2012)

Sargodha Board

1. Define Bioenergetics. (A-2010)
2. What is Compensation Point? (A-2010)
3. Compare Aerobic and Anaerobic Respiration. (A-2010)
4. What are Thylakoids? (A-2011)
5. Where and when Anaerobic Respiration occurs in man and other animals. (A-2011)
6. Define Oxidative Phosphorylation. (A-2011)
7. Differentiate between Absorption Spectrum and Action Spectrum. (A-2012)
8. Define Redox Process. Give example. (A-2012)

9. Differentiate between Photosynthetic and Accessory Pigments. (A-2012)

Faislabad Board

1. What is meant by Compensation Point? (A-2007)
2. What is Photolysis? (A-2007)
3. What is Glycolysis? (A-2007)
4. Define Aerobic and Anaerobic Respiration. (A-2008)
5. What is Chemiosmosis? (A-2008)
6. What are Accessory Pigments? (A-2008)
7. What are Cytochromes? (A-2009)
8. What is Compensation Point? (A-2009)
9. What is Compensation Point? When it occurs? (A-2010)
10. What is Stroma? Give its function. (A-2010)
11. Give the molecular formulae for Chlorophyll "a" and "b". (A-2010)
12. What is Calvin Cycle? (A-2011)
13. Differentiate between Absorption Spectrum and Action Spectrum. (A-2011)
14. Define Compensation Point. (A-2011)
15. Name the processes which act as energy capturing and energy releasing. (A-2012)
16. What are Accessory Pigments? State their role. (A-2012)
17. What is Rubisco? What is its function? (A-2012)

Chapter No: 12 3 SQs Multan Board

1. Name diseases caused by *Clostridium butulinum* and *Salmonella*. (A-2007)
2. Write a brief note on Microsporidia. (A-2007)
3. What are the functions of Secretin and Gastrin? (S-2007)
4. What is the role of Gastrin? (Model Paper-2006-08)
5. How is food swallowed by you? (Model Paper-2006-08)
6. Name the parts of three main divisions of the Digestive System of Cockroach. (Model Paper-2006-08)
7. Differentiate between Appendicitis and Appendicitis. (Model Paper-2006-08)
8. What are Fluid Feeders? Give two examples. (A-2008)
9. What is the biological name Pitcher Plant? (A-2008)
10. What are Omnivores? (S-2008)
11. What is Assimilation? (S-2008)
12. Differentiate between Ingestion and Egestion. (A-2009)
13. Define Macrophagous feeding with examples. (A-2009)
14. What is the effect of deficiency of Magnesium on Plants? (S-2009)
15. What is Heart Burn or Pyrosis? (S-2009)
16. Name two groups of Herbivorous Mammals. (A-2010)
17. How Pepsinogen is converted into Pepsin? (A-2010)
18. How does Jaundice develop? (A-2010)
19. What are Detritivore and Omnivore Animals? (S-2010)
20. What are Symptoms of Dyspepsia? (S-2010)
21. What is Pyrosis? Give its causes. (S-2010)
22. What is Jaundice? (A-2011)
23. What are Omnivores? Give two examples. (S-2011)
24. What is Chyme? (S-2011)
25. Give the names of four digestive juices in man (S-2011)
26. Differentiate between Absorption and Assimilation. (A-2012)

27. What are Ungulates? Give their two examples. (A-2012)
28. Define Botulism. Name the bacterium which causes Botulism. (A-2012)
29. Define Nutrition. (A-2013-New)
30. Differentiate between Absorption and Assimilation. (A-2013-New)
31. What is Heart Burn or Pyrosis? Also describe its cause. (A-2013-New)
32. What are Detritivores? (A-2013-Old)
33. What is Jaundice? (A-2013-Old)
34. What is Pyrosis? (A-2013-Old)

Bahawalpur Board

1. What is Jaundice? (A-2007)
2. Differentiate between Autotrophic and Heterotrophic Nutrition. (A-2007)
3. Write a note on Saprotrophic Nutrition in Plants. (A-2008)
4. What are Fluid Feeders? Give two examples. (A-2008)
5. Give two main functions of Human Liver. (A-2009)
6. What are Fluid Feeders? (A-2009)
7. How the Secretion of Gastric Juice is regulated? (A-2011)
8. Give the Importance of Predator-Prey Interaction in an Ecosystem. (A-2011)
9. Illustrate the structure of a VILLUS. (A-2011)
10. What do you know about Radula? (A-2012)
11. Define Pyrosis. (A-2012)
12. What are Zymogen Cells? (A-2012)
13. What is Holozoic Nutrition? Define Assimilation. (A-2013)
14. Name two structures involved in the digestive system of Cockroach. (A-2013)
15. Write down the substrates on which Aminopeptidase and Erypsin react. (A-2013)

Dera Ghazi Khan Board

1. Define Chlorosis. How is it produced? (A-2008)
2. What is Predator-Prey Interaction? How is it helpful for maintaining stability of the Ecosystem? (A-2008)
3. Where Villi are located? Also tell their role. (A-2009)
4. Define Peristalsis. (A-2009)
5. Compare the Dentition in Herbivores and Carnivores. (A-2009)
6. List four main Functions of Oral Cavity in Man. (A-2010)
7. What is the Composition of Gastric Juice? (A-2010)
8. What are Detritivores? Give an example. (A-2010)
9. Differentiate between Constipation and Diarrhea. (A-2011)
10. Enlist the Digesting Enzymes in the Pancreatic Juice of Man. (A-2011)
11. How Adipose Tissue is formed? (A-2011)
12. Give the Composition of Saliva. (A-2012)
13. What is Botulism? Give its causes. (A-2012)
14. Differentiate between Absorption and Assimilation. (A-2012)
15. Give two ways by which pepsinogen is activated. (A-2013)
16. What is botulism? How it is caused? (A-2013)
17. Name the ingredients of Saliva. (A-2013)

Lahore Board

1. What are the types of Salivary Glands in man? (A-2006)
2. What is Nitriton? (A-2007)
3. What is Chyme? (A-2007)
4. What is Chyme? (A-2007)
5. What is Pyrosis? (A-2008)
6. Give the features of Saprophyte. (A-2008)

7. What is Heart Burn? (A-2009)
8. How gall stones are formed? (A-2009)
9. What are Mycorrhizae? (A-2009)
10. What is a Gastrovascular Cavity? (A-2010)
11. How an Adipose Tissue is formed? (A-2010)
12. Give the Composition of Saliva? (A-2010)
13. Differentiate between Absorption and Assimilation. (A-2011)
14. What are the Symptoms shown in Plants of Nitrogen deficiency and Potassium deficiency in the Soil? (A-2011)
15. Name Three Pairs of Salivary Glands and also mention their Location. (A-2011)
16. What do you know about Hunger Pang in Human? (A-2012)
17. Name Enzyme found in Saliva. (A-2012)
18. What are Autotrophs? (A-2012)
19. Define Detritivores. (A-2012)
19. What is botulism? Name the bacterium which cause this disease.(Group I-A-2013)
20. Define the term omnivores with two examples. (Group I-A-2013)
21. Define the term heterotrophic. (Group I-A-2013)
22. What is dyspepsia? (Group II-A-2013)
23. Differentiate between secretin and gastrin. (Group II-A-2013)
24. What are ingredient of gastric juice? (Group II-A-2013)

Gujranwala Board

1. What do you know about Saprophytic Nutrition? (A-2007)
2. Differentiate between Carnivores and Omnivores. (A-2007)
3. What is Pyrosis? (A-2008)
4. Give the features of Saprophyte. (A-2008)
5. Distinguish Detritivores from Carnivores. (A-2009)
6. Name any Two Salivary Glands in Humans. (A-2009))
7. What is Botulism? Give its cause. (A-2009)
8. What is the Difference between Ingestion and Digestion? (A-2010)
9. How does the problem Gall Stones develop? (A-2010)
10. What is Holozoic Nutrition? (A-2011)
11. What are Detritivores? (A-2011)
12. What is Chlorosis? (A-2011)
13. Define Peristalsis and Antiperistalsis. (A-2012)
14. What is Heart-Burn or Pyrosis? (A-2012)
15. What do you know about Fluid Feeders?

Rawalpindi Board

1. Define Assimilation. (A-2010)
2. Define Villi. Name the Lymphatic Vessel present in Villi. (A-2010)
3. What is Dyspepsia? (A-2010)
4. What is the Composition of Gastric Juice? (A-2011)
5. Give the names and position of each Salivary Gland in Man. (A-2011)
6. Enlist Basic Steps involved in Holozoic Nutrition. (A-2011)
7. What is Botulism? (A-2012)
8. Differentiate between Ingestion and Egestion. (A-2012)
9. What is the Commonest Cause of Food Poisoning? (A-2012)

Sargodha Board

1. What is a Hunger Pang? (A-2010)

2. Write Two Main Functions of Human Liver. (A-2010)
3. Describe the role of Nitrogen and Potassium in Plants briefly. (A-2010)
4. Differentiate Jaundice and Chlorosis. (A-2011)
5. Define Symbiotic Nutrition. Give example. (A-2011)
6. Write down Causes and Symptoms of Botulism. (A-2011)
7. What are Insectivorous Plants? How do they get their Carbohydrates? (A-2012)
8. Give Names of Hormones secreted by Digestive System. Also write their Functions. (A-2012)
9. What is Pyrosis? Give its Causes. (A-2012)

Faislabad Board

1. Discuss the Role of Gastrin. (A-2007)
2. Write Main Functions of Human Liver. (A-2008)
3. Give two Examples of Endoparasites. (A-2008)
4. Point out difference between Diarrhea and Constipation. (A-2009)
5. What is Symbiotic Nutrition? (A-2009)
6. What is Jaundice? (A-2009)
7. What is Obesity? (A-2010)
8. What do you know about Botulism? (A-2011)
9. Differentiate between Detritivores and Omnivores. (A-2011)
10. Define Macrophagous Feeding with example. (A-2012)
11. Differentiate between Food Poisoning and Botulism. (A-2012)
12. Define Symbiotic Nutrition. Give example. (A-2012)

Chapter No: 13 4 SQs Multan Board

1. What are the Causes of Asthma? (A-2007)
2. Write Four Properties of Respiratory Surfaces. (A-2007)
4. Air is better Respiratory Medium than Water. Explain. (Model Paper-2006-08)
5. How does gaseous exchange occur in Frog? (Model Paper-2006-08)
6. What is Diving Reflex in Cetaceans? (Model Paper-2006-08)
7. What are Parabronchi? (A-2008)
8. What is Photorespiration? (S-2008)
9. What do you mean by Pulmonary Respiration? (S-2008)
10. Write down Symptoms of Emphysema. (A-2009)
11. State Myoglobin and its function. (A-2009)
12. State Symptoms of Tuberculosis. (A-2009)
13. Define Photorespiration. (S-2009)
14. What are Spiracles? How many Pairs of Spiracles are present in Cockroach? (S-2009)
15. What is the amount of CO₂ /100 ml in Arterial and Venous Blood? (A-2010)
16. What are Parabronchi? (A-2010)
17. Differentiate between Organismic and Cellular Respiration. (A-2010)
18. Compare Inhalation and Exhalation in Frog. (S-2010)
19. Define Parabronchi. (S-2010)
20. What are the functions of Nasal Cavity? (A-2011)
21. Differentiate between Glottis and Epiglottis. (A-2011)
22. Write down Four Changes which take place in the body of Diving Mammals. (A-2011)
23. What is Respiratory Distress Syndrome? (S-2011)
24. How does Asthma develop? (S-2011)

25. Give Characters of Respiratory Membrane. (A-2012)
26. How do Exhalation and Inhalation occur in Cockroach? (A-2012)
26. What factors keep the skin of Earthworm moist for gaseous exchange? (A-2013-New)
27. How expiration occurs in man? (A-2013-New)
28. What are Bronchi? (A-2013-New)
29. What is the normal rate of breathing at rest in humans? (A-2013-New)
30. What are Pleura? (A-2013-Old)
31. Briefly describe Tuberculosis. (A-2013-Old)

Bahawalpur Board

1. Define Cellular Respiration. (A-2007)
2. What is Respiratory Distress Syndrome in Premature Human Infants? (A-2007)
3. What is Asthma? How is it caused? (A-2008)
4. What is Respiratory Distress Syndrome? How is it caused? (A-2008)
5. What are Parabronchi? (A-2009)
6. What are Alveoli? Give their function. (A-2009)
7. Define Photorespiration. (A-2010)
8. Name Respiratory Pigment of Muscle and give its role. (A-2010)
9. Distinguish between Stomata and Lenticels. (A-2010)
10. Write Two Properties of Respiratory Surfaces in Animals. (A-2011)
11. What are Parabronchi? (A-2011)
12. Define Inhalation and Exhalation in Frog. (A-2011)
13. Differentiate between Bronchi and Bronchioles. (A-2013)
14. How organismic respiration is different from cellular respiration? (A-2013)
15. Define Photo Respiration. (A-2013)
16. What is Respiratory Distress Syndrome? (A-2013)

Dera Ghazi Khan Board

1. What are Parabronchi? Give their role. (A-2008)
2. Give Respiration in Hydra with brief description. (A-2008)
3. Why Air is Better Respiratory Medium than Water? (A-2009)
4. What is Respiratory Distress Syndrome? (A-2009)
5. What are Stomata? Give their approximate number in leaves of Tobacco Plant? (A-2010)
6. Distinguish between Oxyhemoglobin and Carboxyhemoglobin. (A-2010)
7. What is Carcinoma? (A-2010)
8. Write the Properties of Respiratory Surfaces in Animals. (A-2011)
9. What is Respiratory Distress Syndrome? (A-2011)
10. Differentiate between Respiration and Breathing. (A-2011)
11. Name Some Respiratory Disorders. (A-2012)
12. What is Respiratory Distress Syndrome? (A-2012)
13. What is Asthma? (A-2012)
14. Write properties Good Respiratory Surfaces. (A-2012)
15. Give changes when diving reflex is activated. (A-2013)
16. Name the causative agent of tuberculosis. (A-2013)
17. What are parabronchi? (A-2013)
18. Define photorespiration. Name enzyme involved in this process. (A-2013)

Lahore Board

1. What are the Two Properties of a Respiratory Surface? (A-2006)
2. What is Photorespiration? (A-2007)
3. What are Spiracles? (A-2007)
4. What are Pleura? (A-2008)

5. What is Diving Reflex? (A-2008)
6. How does Breathing differ from Respiration? (A-2009)
7. What are Respiratory Distress Syndrome? (A-2009)
8. Differentiate between External Respiration and Cellular Respiration. (A-2010)
9. Differentiate between Inspiration and Expiration. (A-2010)
10. What is Diaphragm? State its role in Breathing. (A-2010)
11. What are Two Properties of Respiratory Surfaces in Animals? (A-2010)
12. What is Operculum? (A-2011)
13. Why air is Better Respiratory Medium? (A-2011)
14. What do you know about Counter Current Exchange? (A-2011)
15. How Respiration takes place through Cork Tissues? (A-2012)
16. What is Operculum? (A-2012)
17. What are Causes of Asthma? (A-2012)
18. What are Functional Units of Lungs? (A-2012)
19. Differentiate between Inspiration and Expiration. (A-2012)O
20. What is respiratory Distress Syndrome? (A-2012)
21. What is photorespiration? (Group I-A-2013)
22. What is respiratory distress syndrome? (Group I-A-2013)
23. How the volume of chest cavity is reduced during expiration? (Group I-A-2013)
24. How the concentration of CO₂ affects the the capacity of hemoglobin to combine with O₂? (Group I-A-2013)
25. What is Operculum? (Group II-A-2013)
26. Define the term photorespiration. (Group II-A-2013)
27. What is cutaneous respiration? (Group II-A-2013)
28. What do you know about diving reflex? (Group II-A-2013)

Gujranwala Board

1. How much CO₂ in present in Venous and Arterial Blood? (A-2006)
2. Write Two Properties of Respiratory Surface in Animals. (A-2007)
3. What do you know about Expiration? (A-2007)
4. Define the Alveoli. Give their function. (A-2008)
5. Give percentage of CO₂ in Venous and Arterial Blood. (A-2008)
6. Differentiate between Organismic-Respiration from Cellular Respiration. (A-2009)
7. What are Parabronchi? (A-2009)
8. Give the Composition of Exhaled Air in Man. (A-2010)
9. What keeps the Skin of Earthworm moist for Gaseous Exchange? (A-2010)
10. How pH affects the Combining Capacity of Oxygen to Hemoglobin? (A-2010)
11. Differentiate between Stomata and Lenticels. (A-2011)
12. What are Vocal Cords? Write their Functions. (A-2011)
13. Write the cause of Lung Cancer. (A-2011)
14. Compare Water Medium with Air Medium with respect to Respiration. (A-2011)
15. Why Air is a better Respiratory Medium than Water? (A-2012)
16. Write the causes of Lung Cancer. (A-2012)

Rawalpindi Board

1. What is structural difference between Hemoglobin and Myoglobin? (A-2010)
2. Write down the Types of Respiration in Frog. (A-2011)
3. What is Asthma? (A-2011)
4. Differentiate between Photorespiration and Cellular Respiration. (A-2011)
5. Why Air is is best Respiratory Medium than Water? (A-2012)
6. Differentiate between Composition of Inhaled and Exhaled Air. (A-2012)

Sargodha Board

1. Give function of Carbonic Anhydrase. (A-2010)
2. Define Photorespiration. (A-2010)
3. What is Myoglobin? (A-2010)
4. Describe the Causes of Asthma Disease. (A-2010)
5. What are Pleura? (A-2011)
6. How does Carbon Dioxide affect the Oxygen carrying capacity of Hemoglobin? (A-2011)
7. Define the Residual Volume of Lung. What is Residual Volume of Lung in Man? (A-2011)
8. Write Gaseous Exchange in Plants. (A-2012)
9. What do you know about Pleura and Alveoli? (A-2012)
10. What is Photorespiration? (A-2012)
11. Define Ventilation and Respiration. (A-2012)

Faislabad Board

1. What is Photorespiration? (A-2007)
2. What is Emphysema? (A-2008)
3. What do you know about Respiratory Distress Syndrome? (A-2008)
4. What is Pulmonary Respiration? (A-2009)
5. Name some Respiratory Disorders. (A-2009)
6. Write Two Properties of Respiratory Surface in Animals. (A-2010)
7. What is Emphysema? (A-2010)
8. Give Percentage of CO₂ in Normal Venous and Arterial Blood. (A-2010)
9. Differentiate between Organismic Respiration and Cellular Respiration. (A-2011)
10. Point out the location and function of Vocal Cords in Human. (A-2011)
11. What is Myoglobin? State its any one function. (A-2011)
12. Define Parabronchi. (A-2012)
13. Explain Spiracles in Cockroach. (A-2012)

Chapter No: 14 2 SQs

Multan Board

1. What controls the Movement of K⁺ into and out of Guard Cells? (A-2007)
2. How do Humidity and Vapour Pressure affect rate of Transpiration? (A-2007)
3. What is the Role of Capillaries in Blood Circulation and Transportation? (A-2007)
4. Define Active Immunity and Passive Immunity. (S-2007)
5. What is Plasmolysis? (Model Paper-2006-08)
6. What are the Characteristics of Circulatory System of a Multicellular Animal? (Model Paper-2006-08)
7. Compare Monocyte with Lymphocytes. (Model Paper-2006-08)
8. What is Electrocardiogram? (Model Paper-2006-08)
9. What is the function of Tricuspid Valve? (A-2008)
10. What are Macrophages? (A-2008)
11. Differentiate between Antigens and Antibodies. (A-2008)
12. What is Apoplast Pathway? (A-2008)
13. What is Plasmolysis? (S-2008)
14. What is Transpiration? (S-2008)
15. What do you mean by Hypertension? (S-2008)
16. What is Haemorrhage? (S-2008)

17. Define Imbibition. (A-2009)
18. Give the Pathway of Blood in Single Circuit Heart. (A-2009)
19. How does Carbon Dioxide concentration affect the rate of Transpiration? (A-2009)
20. Define Guttation. (S-2009)
21. What is Stomata and write its Functions? (S-2009)
22. Define Blood Pressure. (S-2009)
23. Differentiate between Active and Passive Immunity. (S-2009)
24. Name Four Parts of Heart of Fishes. (A-2010)
25. What is the Importance of Transpiration? (A-2010)
26. Compare Endosmosis with Exosmosis. (S-2010)
27. What are Blue Babies? (S-2010)
28. What is Imbibition? Write its significance for the germinating seed. (A-2011)
29. Differentiate between Passive and Active Immunity. (A-2011)
30. What is Pace Maker? Write its function. (A-2011)
31. Compare Open Circulatory System with Closed Circulatory System. (A-2011)
32. What is Pericardium? Write its functions. (S-2011)
33. Differentiate between Systolic and Diastolic Blood Pressure. (S-2011)
34. What is E.C.G? Write its Importance? (S-2011)
35. What do you know Blue Babies? (S-2011)
36. What is Electrocardiogram or ECG? State its use. (A-2012)
37. Compare Cell Mediated Response with Humoral Immune Response. (A-2012)
38. Differentiate between Pulmonary and Systemic Circulation. (A-2012)
39. What is the difference between Guttation and Bleeding? (A-2012)
40. What is meant by Hypertension? (A-2013-New)
41. What is Facilitated Diffusion? (A-2013-New)
42. What is the function of Eosinophils? (A-2013-Old)
43. Define the function of Basophils. (A-2013-Old)
44. What is the role of Platelets in blood? (A-2013-Old)

Bahawalpur Board

1. What is Vacuolar Pathway? (A-2007)
2. Define Cohesion Tension Theory. (A-2007)
3. What is Cuticular Transpiration? (A-2007)
4. What is the role of K^+ ion in the Opening of Stomata? (A-2007)
5. What do you know about Vacuolar path way? Explain. (A-2008)
6. Differentiate between Cohesion and Adhesion. (A-2008)
7. What are Hydathodes? Where are they situated? (A-2008)
8. What are Platelets? Give their role. (A-2008)
9. Differentiate between Antigens and Antibodies. (A-2009)
10. Differentiate between Guttation and Bleeding. (A-2009)
11. Differentiate between Artery and Vein. (A-2009)
12. Give the role of Platelets. (A-2010)
13. Write difference between Guttation and Bleeding. (A-2010)
14. What are different types of Transpiration? (A-2010)
15. Distinguish between Pulmonary Circulation and Systemic Circulation. (A-2011)
16. Distinguish between Cavum Venosum and Cavum Pulamule. (A-2011)
17. How mineral ions are transported into root cells whose concentration is already high in root cells? (A-2011)
18. Distinguish between Symplast and Apoplast Pathway for Transport of Water. (A-2011)
19. Define Source and Sink. (A-2013)
20. Give the equation of Water Potential. (A-2013)

Dera Ghazi Khan Board

1. Define Water Potential. Give its Components. (A-2008)
2. Differentiate between Open and Closed Circulatory System. Give an example in each case. (A-2008)
3. What is Atherosclerosis? How is it caused? (A-2008)
4. Differentiate Apoplast and Symplast Pathways briefly. (A-2008)
5. What is meant by Single Circuit Heart? (A-2009)
6. What do you know about Pressure Flow Theory? (A-2009)
7. Define Facilitated Diffusion. (A-2009)
8. What is Pacemaker? (A-2011)
9. Differentiate between Artery and Vein. (A-2011)
10. What is Blue Baby? (A-2011)
11. What is meant by Plasmolysis and Deplasmolysis? (A-2011)
12. Define Hypertension and Thrombo-Embolism. (A-2012)
13. Define Atherosclerosis. (A-2012)
14. Differentiate between Cell Mediated and Humoral Response. (A-2012)
15. Compare Monocytes with Lymphocytes. (A-2012)
16. Write a note on Bleeding. (A-2012)
17. Define Pulmonary and Systemic Circulation. (A-2012)
18. What are Blood Platelets? Give their Function. (A-2012)
19. What do you know about Active Immunity? (A-2012)
20. What is plasmolysis? What happens to the cell by its occurrence? (A-2013)
21. Write down the symplast pathway of H_2O to reach xylem tissues. (A-2013)

Lahore Board

1. What is an Apoplast Pathway? (A-2007)
2. What is Osmotic Potential? (A-2007)
3. What is kPa? (A-2007)
4. What is bleeding in Plants? (A-2007)
5. State Pressure Flow Theory. (A-2008)
6. Define Imbibition. (A-2008)
7. What is Pulmonary Circulation? (A-2008)
8. Give the role of Platelets. (A-2008)
9. Differentiate between Solute and Pressure Potential. (A-2009)
10. How Stomata Open? Give one method. (A-2009)
11. Differentiate between Active and Passive Immunity? (A-2009)
12. What is Blood Pressure? (A-2009)
13. Differentiate between an Artery and a Vein. (A-2010)
14. What is difference between Antigen and Antibody? (A-2010)
15. What do you know about Imbibitions? (A-2010)
16. Define Transpiration. Write its effects on Plants. (A-2011)
17. Differentiate between Water Potential and Solute Potential. (A-2011)
18. What do you know about Bleeding in Plants? (A-2011)
19. Compare Diffusion with Osmosis. (A-2011)
20. Define Apoplast Pathway. (A-2012)
21. Define Imbibition. (A-2012)
22. What do you know about Guttation? (A-2012)
23. Define Diffusion. (A-2012)
24. What is Plasmolysis? (A-2012)
25. Define Stomatal Transpiration. (A-2012)
26. Differentiate between Cohesion and Adhesion. (A-2012)
27. What is Cell-Mediated Response and Humoral Response? (A-2012)
28. What do you know about Myocardial Infarction? (A-2012)
29. Write a note on Electrocardiogram. (A-2012)
30. Differentiate between Single Circuit Heart and Double Circuit Heart. (A-2012)
31. What are blue babies? (Group I-A-2013)
32. Differentiate between pulmonary circulation and systemic circulation. (Group I-A-2013)

33. Define active immunity. (Group II-A-2013)
34. State the names of two types of leucocytes. (Group II-A-2013)

Gujranwala Board

1. Write about Lenticular Transpiration. (A-2007)
2. What do you know about Vein? (A-2007)
3. What is Closed Circulatory System? (A-2007)
4. Explain Immunity and give its types. (A-2007)
5. What is Stroma? Give its function. (A-2008)
6. Why animal cells can not with stand a Higher Pressure Potential? (A-2008)
7. Give the Names of Three Main Blood Vessles and their Functions in Earthworm. (A-2008)
8. State the Pathway of Blood in a Single Circuit Heart. (A-2008)
9. Write Two Important Chemicals produced by Basophils. What functions do they form? (A-2008)
10. Define Plasmolysis and Deplasmolysis. (A-2009)
11. What are Guttation and Imbibition? (A-2009)
12. What are Blue Banies? (A-2009)
13. What are Casparian Strips abd their Role? (A-2010)
14. Give Two Factors Respnsponsible for Bleeding in Plants. (A-2010)
15. What is a Single Circuit Heart? Give example. (A-2010)
16. Differentiate between Myocardial Infarction and Hemorrhage. (A-2011)
17. Define Osmotic Potential. (A-2011)
18. Define Active Immunity and Passive Immunity. (A-2011)
19. Why Root Pressure is not enough to push Water Upwards to Required Height in most of the Plants? (A-2011)
20. Define Facilitated Diffusion and quote one example. (A-2012)
21. Differentiate between Stoke and Hemorrhage. (A-2012)
22. What is Cohesion Tension Theory of Ascent of Sap? Who proposed it? (A-2012)
23. Differentiate between Diffusion and Active Transport. (A-2012)

Rawalpindi Board

1. What are Isobilateral Leaves? (A-2010)
2. Give the Composition of Honey Dew. (A-2010)
3. What is the Pathway of Blood in Single Circuit Heart? (A-2010)
4. Define Guttation. (A-2011)
5. State Pressure Flow Theory. (A-2011)
6. Differentiate between Vasodilation and Vasoconstrictio. (A-2011)
7. Define Immunity. Name its types. (A-2011)
8. State Pressure Flow Theory. Who proposed it? (A-2012)
9. Differentiate between Pulmonary and Cystemic Circulation. (A-2012)
10. Define Bleeding in Plants. Give its causes. (A-2012)
11. Differentiate between Plasmolysis and Deplasmolysis. (A-2012)

Sargodha Board

1. What are different types of Transpiration? (A-2010)
2. Give the Role of Platelets. (A-2010)
3. Differentiate between Apoplast and Symplast Pathway of Water during absorpion. (A-2010)
4. What is Incipient Plasmolysis? (A-2010)
5. Differentiate between Passive Immunit and Active Immunity. (A-2010)

6. Name the factors affecting the Rate of Transpiration. (A-2010)
7. What is Humoral Immune Response? (A-2011)
8. Define the term "Thrombo embolism"! (A-2011)
9. Define "Systolic Pressure" and Diastolic Pressure"! (A-2011)
10. Define Systemic Circulation. (A-2011)
11. Write Apoplast and Symplast Pathways. (A-2012)
12. What do you know about Thalassaemia? (A-2012)
13. What do you know about Blue Babies? (A-2012)
14. How Thrombus-Formation takes place? (A-2012)
15. What is Lenticular Transpiration? (A-2012)
16. What is Imbibition? (A-2012)
17. Define Plasmolysis and Pressure Potential. (A-2012)
18. Differentiate Apoplast from Symplast Pathway of Water in Plants. (A-2012)

Faislabad Board

1. Compare Monocyte with Lymphocyte. (A-2007)
2. What is Electrocardiogram? (A-2007)
3. Write the difference between Guttation and Bleeding. (A-2008)
4. Define Facilitated Diffusion. (A-2008)
5. What is Single Circuit and Double Circuit Heart? (A-2008)
6. What is Symplast Pathway? (A-2008)
7. What are Blue Babies? (A-2009)
8. What is Immunity? (A-2009)
9. What are Sinks in Phloem Transport? (A-2009)
10. Define Imbibition. (A-2009)
11. What is Stroma? Give its function. (A-2010)
12. What is Water Potential? Give its Equation. (A-2011)
13. Differentiate between Source and Sink. (A-2011)
14. Give the location of Bicuspid and Tricuspid Valve in the Human Heart. (A-2011)
15. Differentiate between Active Immunity and Passive Immunity. (A-2011)
16. Define Antiserum. (A-2012)
17. Define Passive Immunity. (A-2012)
18. What do you know about Cell-Mediated Response? (A-2012)
19. What is Bursa of Fabricius? (A-2012)

Essay Type Questions From

Multan, and other Boards of Secondary and Higher Secondary Education of Punjab

Chapter No: 1 Multan Board

1. What is the role of the study of Biology in the Welfare of Mankind? (8) (A-207)
2. Write a short note on Biological Method of study of Biological Problem (5) (S-207)
3. What is the role of study of Biology in the welfare of mankind in the field of Health, Food and Environment. (8) (A-209)
4. How Biology has been helping mankind in the area of Health and Disease Control? (5) (A-2011)
5. Explain various steps in Biological Method. (4) (A-2013- New)

Bahawalpur Board

1. Explain protection and conservation of Environment. (4) (A-2008)
2. Write a note on protection and conservation of environment. (4) (A-2009)
3. What is Cloning? Describe process of Cloning. Also write down its importance. (4) (A-2012)
4. How Biology helped mankind in the field of Food Production? (4) (A-2013)

Dera Ghazi Khan Board

1. Write a detailed note on protection and conservation of environment. (4) (A-2013)

Lahore Board

1. Describe protection and conservation of the environment. (4) (A-2006)
2. Explain the biological methods for solving biological problem. (4) (A-2007)
3. Write notes on the following. (A-2010)
 - i) Preventive measures of disease (5)
 - ii) Vaccination (3)
4. Write a note on cloning. (4) (Group I-A-2013)
5. Describe biological organization at organ and system level. (4) (Group II-A-2013)

Gujranwala Board

1. Discuss briefly Phyletic Lineage. (3) (A-2010)

Rawalpindi Board

1. Describe contribution of Biology in the field of Health. (4) (A-2010)
2. Give an account of Biological Method. (4) (A-2011)

Sargodha Board

1. Describe importance of Biology in increasing food production. (4) (A-2011)
2. Discuss briefly phyletic lineage in biological organization. (4) (A-2012)

Faislabad Board

1. Discuss briefly ohyletic lineage in biological organization. (4) (A-2010)

Chapter No: 2

Multan Board

2. What are Amino Acids? Describe four levels of Protein Organization. (4) (Model Paper 2006-2008)
3. What are Monosaccharides? Explain their structure and occurrence. (5) (A-2008)
4. Write the functions of Proteins. (4) (S-2008)
5. Explain Primary Structure of Proteins. (3)
6. Write a note on Nucleic Acids. (4) (A-2010)
7. Describe Primary and Secondary Structure Levels of Protein Organization. (4) (S-2010)
8. What is RNA? Describe various types of RNA. (4) (A-2013-New)
9. Define the structure and function of DNA. (4) (A-2013-Old)

Bahawalpur Board

1. Describe the different structures and function of Protein. (8) (A-2007)
2. Write a note on Acylglycerol. (4) (A-2010)
3. Describe various properties of water which make it ver important molecule for for life. (5) (A-2011)
4. Write in detail different types of RNA. (4) (A-2013)

Dera Ghazi Khan Board

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|----|--|-----|----------|
| 1. | What are Nucleic Acids and what are their types? | (4) | (A-2008) |
| 2. | What do you know about Polysaccharides? | (4) | (A-1010) |
| 3. | Write a note on primary and structure of proteins. | (4) | (A-2013) |

Lahore Board

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|-------|---|-----|--------------|
| 1. | Write an essay on RNA and its types. | (6) | (A-2006) |
| 2. | Write an essay on Lipids. | (8) | (A-2008) |
| 3. | Describe biological properties and importance of water. | (4) | (A-2009) |
| 4. | Describe the structure of Proteins. | (4) | (A- |
| 2010) | | | |
| 5. | Describe three main types of Ribonucleic Acids (RNA). | (4) | (A-2011) |
| 6. | Compare Monosaccharides with Oligosaccharides. | (4) | (A-2012) |
| 7. | What are polysaccharides? Describe different types. | (4) | (Group I-A- |
| 2013) | | | |
| 8. | Explain different types of RNAs. | (4) | (Group II-A- |
| 2013) | | | |

Gujranwala Board

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|-------|--|-----|-----|
| 1. | Explain primary, secondary and tertiary structure of proteins. | (6) | (A- |
| 2006) | | | |
| 2. | Write a detailed note on Monosaccharides. | (4) | (A- |
| 2008) | | | |
| 3. | Write the Watson and Crick model of DNA. | (4) | (A- |
| 2009) | | | |
| 4. | Compare Monosaccharides with Oligosaccharides. | (4) | (A- |
| 2010) | | | |

Rawalpindi Board

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|-------|--------------------------------|-----|-----|
| 1. | Write a note on Acylglycerols. | (4) | (A- |
| 2010) | | | |

Sargodha Board

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|-------|---|-----|-----|
| 1. | What do you know about Primary Structure of Proteins? | (4) | (A- |
| 2010) | | | |

Faislabad Board

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|----------|---|-----|-----|
| 1. | Write a note on Oligosaccharides. | (4) | (A- |
| 2009) | | | |
| 2. | Describe the importance of life in water. | (4) | (A- |
| 2010) | | | |
| 3. | Describe primary and secondary structure of Proteins. | (4) | (A- |
| 2011) | | | |
| 4. | Write down the characteristics of Fibrous Proteins and Globular Proteins. | (4) | |
| (A-2012) | | | |

Chapter No:3

No Essay Type Question According to New Pattern

Chapter No: 4

Multan Board

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|-----------|---|-------|----------|
| 1. | Describe the structure and functions of: | (4+4) | (A-2007) |
| | i) Glyoxisomes ii) Peroxisomes | | |
| 2. | Write note on Plastids. | (5) | (S-2007) |
| 3. | Write a note on Endoplasmic Reticulum. | (5) | (S-2007) |
| 4. | Differentiate between Prokaryotes and Eukaryotes. | (4) | (A- |
| 2008) | | | |
| 5. | Write a note on Plastids. | (3) | (S- |
| 2008) | | | |
| 6. | Write a note on Plastids. Explain with diagram. | (5) | (S- |
| 2009) | | | |
| 7. | Write a note on Plastids. Explain with diagram. | (4) | (A- |
| 2010) | | | |
| 8. | Write a detailed note on Plasma Membrane. | (4) | (S- |
| 2010) | | | |
| 9. | What are Plastids? Discuss their structure and role. | (4) | (A- |
| 2011) | | | |
| 10. | Differentiate between Prokaryotes and Eukaryotes. | (4) | (S- |
| 2011) | | | |
| 11. | What are Glyoxysomes? Give their structure and functions. | (2+2) | (A-2013- |
| New) | | | |
| 12. | Discuss structure and function of Chloroplasts. | (4) | (A- |
| 2013-Old) | | | |

Bahawalpur Board

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|-------|--|-----|-----|
| 1. | Write a note on structure and functions of Mitochondria. | (4) | (A- |
| 2008) | | | |
| 2. | Write a note on Cell Wall. | (4) | (A- |
| 2010) | | | |
| 3. | Describe various types of Plastids. | (4) | (A- |
| 2011) | | | |
| 4. | Differentiate between Prokaryotes and Eukaryotes. | (4) | (A- |
| 2012) | | | |
| 5. | Write a note on Mitochondria. | (4) | (A- |
| 2013) | | | |

Dera Ghazi Khan Board

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|-----|--|-----|----------|
| 1. | Write down atleast three differences between Prokaryotic and Eukaryotic Cells. | | |
| (3) | | | |
| | (A-2008) | | |
| 2. | Write note on Plastids. | (4) | (A-2012) |
| 3. | Differentiate between prokaryotic and eukaryotic cell. | | (A-2013) |

Lahore Board

1. Write notes on: (5) (A-2006)
i) Cytoskeleton ii) Plastids
2. What are Plastids? Explain the structure and function of Chloroplast. Draw figure. (4) (A-2010)
3. Write a note on Cytoskeleton. (4) (A-2011)
4. What are Plastids? Explain the structure and functions of Chloroplast. (4) (A-2012)
5. Write down the structure and functions of mitochondria. (4) (Group I-A-2013)
6. Write a note on cytoskeleton. (4) (Group II-A-2013)

Gujranwala Board

1. Compare structure and function of Chloroplasts and Mitochondria. (4) (A-2007)
2. Write a note on Endoplasmic Reticulum. (4) (A-2009)
3. In what ways prokaryotic cells are different from eukaryotic cells? (4) (A-2011)
4. Write a note on Ribosomes. (4) (A-2012)

Rawalpindi Board

1. Describe the structure of Chloroplast with the help of a diagram. (4) (A-2010)
2. Explain the structure and functions of Plasma Membrane. (4) (A-2011)
3. Differentiate between Prokaryotic and Eukaryotic Cells. (4) (A-2012)

Sargodha Board

1. What are Plastids? Explain the structure and functions of each type. (4) (A-2010)
2. Describe briefly the Cell Wall. (4) (A-2011)
3. Describe differences between Prokaryotic and Eukaryotic Cells. (4) (A-2012)

Faislabad Board

1. Describe the structure and function of nucleus in detail. (8) (A-2007)
2. What are Plastids? Describe their types and functions. (4) (A-2008)
3. Explain the structure and functions of Endoplasmic Reticulum. (4) (A-2010)
4. What are Cytoskeletons? Describe various types and their functions. (4) (A-2011)
5. Write a note on plant Cell Wall. (4) (A-2012)

Chapter No:5

Multan Board

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|----|--|-------|--------------|
| 1. | Expain replication of Bacteriophage. | (5) | (S-2007) |
| 2. | Describe the structure of Virion. | (4) | (A-2008) |
| 3. | Briefly describe and draw the life cycle of Phage Virus. | (4+1) | (A-2009) |
| 4. | Describe the Lytic Life Cycle of Bacteriophage. | (4) | (A-2010) |
| 5. | Explain the Lytic Life Cycle of Bacteriophage. | (4) | (A-2011) |
| 6. | Describe the life cycle of Bacteriophages. | (4) | (A-2013-New) |
| 7. | Describe the life cycle of a bacteriophage. | (4) | (A-2013-Old) |

Bahawalpur Board

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|----|---|-----|----------|
| 1. | Write about Hepatitis. | (4) | (A-2008) |
| 2. | Explain Lytic Life Cycle of Bacteriophage and draw the diagram. | (5) | (A-2009) |
| 3. | Explain lytic cycle of Bacteriophage. | (4) | (A-2010) |
| 4. | Discuss the Lytic Cycle of Bacteriophage. | (4) | (A-2011) |
| 5. | Give the biological classification of <i>Zea mays</i> . | (4) | (A-2013) |

Dera Ghazi Khan Board

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|----|---|-----|----------|
| 1. | Discuss the life cycles of of Bacteriophage. | (8) | (A-2008) |
| 2. | Give symptoms and causes of AIDS. | (4) | (A-2009) |
| 3. | Explain the life cycles of Bacteriophages with diagram. | (8) | (A-2010) |
| 4. | Show infection cycle of HIV with the help of diagram. | (4) | (A-2011) |
| 5. | Describe infection cycle of HIV. | (4) | (A-2012) |
| 6. | Describe the structure of virus. | (4) | (A-2013) |

Lahore Board

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|----|-----------------------|-----|----------|
| 1. | Write a note on AIDS. | (5) | (A-2006) |
|----|-----------------------|-----|----------|

2. What are Viruses? Give their discovery and general characteristics. (4) (A-2006)
3. Describe life cycles of Bacteriophage. (8) (A-2008)
4. Describe infection cycle of HIV with the help of diagram. (4) (A-2009)
5. Elaborate infection cycle of HIV. (4) (A-2010)
6. Describe structure of Viruses. (4) (A-2012)
7. Describe lytic cycle of Bacteriophage. Show your answer with diagram. (4) (A-2012)
8. Write a note on hepatitis. (4) (Group I-A-2013)
9. Describe Linnaeus System of Binomial Nomenclature in detail. (4) (Group II-A-2013)

Gujranwala Board

1. Describe the life cycles of a Bacteriophage. (8) (A-2008)
2. What are Viruses? Give their three characteristics. (4) (A-2009)
3. Give lytic cycle of Bacteriophage. Show your answer with diagram. (4) (A-2010)
4. Write an essay on Hepatitis. (4) (A-2011)
5. Describe "Lytic Cycle of Bacteriophage" (4) (A-2012)

Rawalpindi Board

1. Draw and label diagram showing life cycle of Bacteriophage. (4) (A-2011)

Sargodha Board

1. Explain lytic cycle of virus. (4) (A-2010)
2. Describe two to Kingdom of Classification System. (4) (A-2011)
3. Describe life cycle of Bacteriophage. (4) (A-2012)

Faislabad Board

1. Describe development of two to five kingdom system of classification for organisms. (8) (A-2009)
2. Explain lytic cycle in viruses. (4) (A-2012)

Chapter No:6

Multan Board

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|--|-----|----------|
| 1. Describe the economic importance of of Cyanobacteria.
(2008) | (3) | (A- |
| 2. Write a note on Cyanobacteria.
(2008) | (4) | (S- |
| 3. Describe different types of Bacteria with reference to Nutrition.
(2009) | (4) | (S- |
| 4. Describe the general characteristics of Cyanobacteria.
(A-2010) | (4) | |
| 5. Explain the respiration in Bacteria.
(S-2010) | (3) | |
| 6. Write a note on Nutrition of Bacteria.
(2011) | (4) | (A- |
| 7. Write a note on Nutrition in Bacteria.
(2011) | (4) | (S- |
| 8. Write down economic importance of Cyanobacteria.
(New) | (4) | (A-2013- |

Bahawalpur Board

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|---|-----|-----|
| 1. Write the postulates of Germ Theory of Diseases.
(2008) | (3) | (A- |
| 2. Write the economic importance of Cyanobacteria.
(2009) | (3) | (A- |
| 3. Describe the Nutrition of Bacteria.
(2010) | (4) | (A- |
| 4. Write down characteristics of Cyanobacteria.
(2011) | (4) | (A- |
| 5. Write a note on Nutrition of Bacteria.
(2013) | (4) | (A- |

Dera Ghazi Khan Board

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|---|-----|-----|
| 1. Describe the postulates of Germ Teheory of Disease.
(2008) | (4) | (A- |
| 2. Describe the nutrition of Bacteria.
(2009) | (4) | (A- |
| 3. Describe the structure and reproduction of <i>Nostoc</i> .
(2013) | (4) | (A- |
| 3. Write a note on uses and misuses of antibiotics.
(2010) | (5) | (A- |
| 4. Explain different phases of growth in Bacteria.
(2010) | (4) | (A- |
| 5. Describe various physical and chemical methods used for controlling microbes.
(4) | | |
| (A-2011) | | |
| 6. Describe nutrition of Bacteria.
(2012) | (4) | (A- |

Lahore Board

1. Write down the characteristics of Cyanobacteria and its economic importance. (4) (A-2007)
2. Describe the characteristics of Cyanobacteria. (4) (A-2011)
3. Describe characteristics of Nostoc. (4) (A-2012)
4. How bacteria get their nutrition? Explain. (4) (A-2012)
5. Explain about use and misuse of Antibiotics. (4) (Group I-A-2013)
6. Discuss nutrition in bacteria. (4) (Group II-A-2013)

Gujranwala Board

1. Differentiate between Gram Positive and Gram Negative Bacteria. (6) (A-2006)
2. Describe habitat and reproduction in *Nostoc*. (4) (A-2009)
3. Explain general characteristics of Cyanobacteria with special reference to *Nostoc*. (8) (A-2010)
3. Describe different methods to control bacteria. (4) (A-2011)
4. Describe nutrition in Bacteria. (4) (A-2012)

Rawalpindi Board

Sargodha Board

Faislabad Board

1. Dscribe physical and chemical methods to control bacteria. (4) (A-2011)

Chapter No:7

No Essay Type Question According to New Pattern

Chapter No:8

Multan Board

- | | | | |
|-----|---|-----|----------|
| 1. | With the help of diagram explain the life cycle of <i>Rhizopus</i> . (2007) | (5) | (S- |
| 2. | Describe Asexual Reproduction in Fungi. (2008) | (4) | (A- |
| 3. | Write Economic Gains due to Fungi. (2008) | (4) | (S- |
| 4. | Give the beneficial importance of Fungi. (2009) | (4) | (S- |
| 5. | Describe Sexual Reproduction in Fungi. (2010) | (4) | (A- |
| 6. | Discuss Economic Loses due to Fungi. (2011) | (4) | (A- |
| 7. | Describe disease cycle of loose smut of wheat caused by <i>Ustilago tritici</i> (Club Fungus). (2011) | (4) | (S- |
| 8. | What is "Ecological Importance of Fungi"? (2012) | (4) | (A- |
| 9. | Narrate four points of Economic Gains due to Fungi. (New) | (4) | (A-2013- |
| 10. | Write a note on Mycorrhizae in detail. (Old) | (4) | (A-2013- |

Bahawalpur Board

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|----|--|-----|----------|
| 1. | Describe the characteristics that enable Fungi to adapt the land environment. (A-2007) | | |
| | What is the economic importance of Fungi? | (8) | |
| 2. | Write Economic Loss due to Fungi. | (4) | (A-2008) |
| 3. | How do Fungi reproduce asexually? | (4) | (A-2010) |
| 4. | How does asexual reproduction occur in Fungi? | (4) | (A-2011) |
| 5. | Discuss Land Adaptations of Fungi. | (4) | (A-2013) |

Dera Ghazi Khan Board

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|----|---|-----|-----|
| 1. | Narrate the Economic Losses of Fungi. (2010) | (4) | (A- |
| 2. | Give the economic loss due to fungi with reference to animal diseases. (2013) | (4) | (A- |

Lahore Board

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|----|--|-----|----------|
| 1. | Give the disease cycle of loose smut of wheat caused by <i>Ustilago tritici</i> . (2006) | (5) | (A- |
| 2. | Give at least three medicinal benefits of Fungi. (2008) | (4) | (A- |
| 3. | Explain Mutualistic Nutrition in Fungi. (2009) | (4) | (A- |
| 4. | Discuss different methods of Asexual Reproduction in Fungi. (2012) | (4) | (A-2011) |
| 5. | Explain taxonomic status of Fungi. (2012) | (4) | (A- |

6. What do you know about nutrition in Fungi? (4) (A-2012)
7. Draw and explain the life cycle of *Rhizopus*. (4) (Group I-A-2013)
8. Describe life cycle of loose smut of wheat with the help of diagram. (4) (Group II-A-2013)

Gujranwala Board

1. Describe asexual reproduction in fungi. (4) (A-2008)
2. Give the beneficial importance of Fungi. (4) (A-2010)
3. Explain various economic gains due to Fungi. (4) (A-2011)
4. Explain "Sexual Reproduction in Fungi". (4) (A-2012)

Rawalpindi Board

1. Write a detailed note on Ascomycota (Sac Fungi). (4) (A-2010)
2. What is Ecological Importance of Fungi? (4) (A-2012)

Sargodha Board

1. What are Economic Gains due to Fungi? (4) (A-2010)
2. Explain Mutualistic Nutrition in Fungi. (4) (A-2011)
3. Explain methods of reproduction in Fungi. (4) (A-2012)

Faislabad Board

1. Give an account of Ascomycetes. (4) (A-2010)
2. Draw life cycle of *Rhizopus*. (4) (A-2011)

Chapter No:9

Multan Board

1. Discuss in detail the life cycle of Pinus. (8) (A-2007)
2. Define alternation of generation. How has seed been evolved? (1+7) (Model Paper-2006-08)
3. Discuss life cycle of an Angiosperm with the help of diagram. (8) (A-2008)

4.	Illustrate and explain Evolution of Leaf.	(8)	(S-2008)
5.	Discuss the life cycle of an Angiosperm.	(4)	(A-2009)
6.	How seed was evolved in Plants?	(5)	(S-2009)
5.	Discuss the life cycle of an Angiosperm.	(4)	(A-2009)
6.	How seed was evolved in Plants?	(5)	(S-2009)
7.	Describe different steps involved in the evolution of Megaphyll.	(4)	(A-2010)
8.	What is alternation of generations? Explain it with special reference to Bryophytes.	(4)	(S-2010)
9.	Describe the Evolution of Seed.	(8)	(S-2011)
10.	Write a short note on "Evolution of Leaf".	(4)	(A-2012)
11.	Write a note on life cycle of Adiantum with the help of diagram.	(4)	(A-2013-New)
12.	Sketch the diagram of life cycle of Adiantum.	(4)	(A-2013-Old)

Bahawalpur Board

1.	Write down Floral Characters of family Rosaceae.	(4)	(A-2008)
2.	Write down the Economic Importance of family Poaceae.	(5)	(A-2009)
3.	Illustrate the Economic Importance of Solanaceae.	(4)	(A-2010)
4.	Write a note on Sphenopsida.	(4)	(A-2012)
5.	Describe adaptive characters of bryophytes for terrestrial environment.	(4)	(A-2013)

Dera Ghazi Khan Board

1.	Discuss the Evolution of Megaphyll (Many Veined Leaf).	(4)	(A-2009)
2.	Describe the Evolution of Seed Habit.	(4)	(A-2010)
3.	Describe Evolution of Leaves.	(4)	(A-2011)
4.	Write down the Economic Importance of family Solanaceae.	(4)	(A-2012)
5.	Describe the evolution of Megaphyll leaf.	(4)	(A-2013)

Lahore Board

1.	Define and explain alternation of generation in Bryophytes. Also give its significance.	(8)	(A-2007)
2.	Explain the Floral Characters of family Solanaceae.	(4)	(A-2008)

3. Discuss in detail the life cycle of *Adiantum* and also sketch it. (8) (A-2009)
4. Write main steps of Evolution of Seed. (3) (A-2010)
5. Describe Vegetative and Floral Characters of Rose Family (Rosaceae). (4) (A-2011)
6. Explain life cycle of an angiosperm plant. (4) (Group I-A-2013)
7. Describe different steps involved in the evolution of Megaphyll. (4) (Group II-A-2013)

Gujranwala Board

1. What are the details of Double Fertilization? Discuss its significance. (4) (A-2006)
2. Discuss various steps involved in the Evolution of Seed Habit. (4) (A-2008)
3. Explain the life history of *Adiantum*. (Fig. not required) (5) (A-2009)
4. Describe the adaptations of Bryophytes to land habitat. (4) (A-2010)
5. Discuss various steps involved in the Evolution of Seed Habit. (8) (A-2011)
6. Explain the Evolution of Seed. (4) (A-2012)

Rawalpindi Board

1. Write a note on Evolution of Leaf. (4) (A-2010)
2. Describe Evolution of Leaf. (4) (A-2011)

Sargodha Board

1. Describe Evolution of Leaf. (4) (A-2010)
2. Explain the life cycle of *Adiantum* with the help of diagram. (4) (A-2011)

Faislabad Board

1. How Evolution of Seed occurs? Explain (8) (A-2008)
2. Describe Economic Importance of family Poaceae. (4) (A-2009)
3. Describe the Economic Importance of family of Poaceae. (4) (A-2010)
4. Write down Economic Importance of family Rosaceae. (4) (A-2011)
5. What are adaptive characters of Bryophytes to Land Habitat? (4) (A-2012)

Chapter No:10

No Essay Type Question According to New Pattern

Chapter No:11

Multan Board

- | | | |
|---|-----|-----------------------|
| 1. Describe various steps involved in the Glycolysis. | (8) | (A-2007) |
| 2. Sketch Kreb's Cycle and discuss its energy yielding steps. | (5) | (S-2007) |
| 3. Discuss Light Dependent Reactions of Photosynthesis. | (8) | (Model Paper-2006-08) |
| 4. Explain various steps of Glycolysis in Cellular Respiration. | (8) | (S-2008) |
| 5. Draw and explain Respiratory Electron Transport Chain. | (4) | (S-2010) |
| 6. Write a detailed note on Kreb's Cycle or Citric Acid Cycle. | (8) | (A-2011) |
| 7. Explain Dark Reaction of Photosynthesis. | (5) | (S-2011) |
| 8. Write Mechanism of Light -Dependent Reactions. | (8) | (A-2012) |
| 9. Sketch and explain the Kreb's Cycle. | (4) | (A-2013-New) |

Bahawalpur Board

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|--|-------|----------|
| 1. Write notes on: | (4+4) | (A-2007) |
| i) Chemiosmosis | | |
| ii) Carotenoids-Accessary Pigments | | |
| 2. Write note on Alcoholic Fermentation and Lactic Acid Fermentation. | (4) | (A-2008) |
| 3. Describe Dark (Light Independent) Reaction. | (8) | (A-2008) |
| 4. Sketch and explain the process of Glycolysis. | (8) | (A-2009) |
| 5. Describe and sketch Light Independent (Dark) Reactions of Photosynthesis. | (8) | (A-2011) |
| 6. Describe process of Glycolysis. | (8) | (A-2012) |
| 7. Write a note on Respiratory Chain | (4) | (A-2013) |

Dera Ghazi Khan Board

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|---|-----|----------|
| 1. Give an account of Light Independent Reaction of Photosynthesis. | (4) | (A-2008) |
| 2. Discuss Non-Cyclic Phosphorylation with the help of diagram. | (8) | (A-2009) |
| 3. Explain the process of Glycolysis with the help of diagram. | (8) | (A-2011) |
| 4. Sketch and describe calvin cycle. | (4) | (A-2013) |

Lahore Board

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|---|-----|----------|
| 1. Define Bioenergetics. Also describe the role of photosynthesis and respiration in Bioenergetics. | (6) | (A-2006) |
| 2. Define Glycolysis and explain it with the help of sketch. | (8) | (A-2007) |
| 3. Explain Kreb's Cycle and sketch its various steps. | (8) | (A-2008) |

4. Write a note on Lactic Acid Fermentation. (3) (A-2009)
5. What is Glycolysis? Give its outline. (4) (A-2010)
6. Explain and sketch Kreb's Cycle and discuss its energy yielding steps. (8) (A-2012)
7. Sketch and describe metabolic pathway of glycolysis. (4) (Group I-A-2013)
8. Describe cyclic phosphorylation with the help of a diagram. (4) (Group II-A-2013)

Gujranwala Board

1. Describe Non-Cyclic Phosphorylation during Light Dependent Reaction (Z-Scheme). (5) (A-2006)
2. Sketch Kreb's Cycle and discuss its energy yielding steps. (8) (A-2007)
3. What is Photophosphorylation? Explain Non-Cyclic Photophosphorylation. (4) (A-2008)
4. Simply give the outline of the Kreb's Cycle. (No Description) (3) (A-2009)
5. Sketch the Kreb Cycle. (4) (A-2010)
6. Explain "Respiratory Electron Transport Chain" with the help of diagram (Sketch). (4) (A-2011)
7. Write the process of Non-Cyclic Phosphorylation. (4) (A-2012)

Rawalpindi Board

1. Describe the structure of Chloroplast with the help of a diagram. (4) (A-2012)
2. Give an account of Glycolysis with the help of diagram. (8) (A-2011)
3. Explain the process of Glycolysis. (4) (A-2012)

Sargodha Board

1. Give an account of Cyclic Phosphorylation. (4) (A-2010)

Faislabad Board

1. Only draw the outline of Kreb's Cycle. (4) (A-2009)
2. Construct an outline for Glycolysis. (4) (A-2010)
3. Explain Calvin Cycle with the help of diagram as it occurs in Photosynthesis. (8) (A-2012)

Chapter No:12

Multan Board

1. Give detailed account of Food Poisoning and Bulimia Nervosa. (8) (A-2009)
2. Draw and explain the structure and roles of Human Stomach in Digestion. (8) (S-2009)
3. Describe digestion of food in Oral Cavity of Man. (5) (S-2010)
4. Describe any two common diseases related to nutrition. (4) (A-2013-New)
5. Describe digestion in small intestine. (4) (A-2013-Old)

Bahawalpur Board

1. Describe the structure and functions of the Human Stomach. (8) (A-2010)
2. Explain absorption of Food in Small Intestine. (4) (A-2013)

Dera Ghazi Khan Board

1. Give Digestion in Amoeba. (4) (A-2008)
2. Describe briefly the process of nutrition in Insectivorous Plants. (3) (A-2010)
3. Explain digestion in oral cavity of man. (4) (A-2013)

Lahore Board

1. Explain process of Digestion in Hydra. (5) (A-2006)
2. Describe the process of Digestion in Amoeba. Explain diagrammatically. (5)(A-2009)
3. Write a note on Digestion in Oral Cavity of Man. (4) (A-2010)
4. Describe Digestion in Small Intestine of Man. (4) (A-2011)
5. Explain the process of Digestion in Cockroach. (4) (A-2012)
6. Discuss any four methods of nutrition in animals. (4) (Group I-A-2013)
7. Describe the role of pancreas and liver in food digestion in humans. (4) (Group II-A-2013)

Gujranwala Board

1. Discuss digestion in Stomach of Man. What is Heart Burn? (6) (A-2006)
2. Give the role of Large Intestine in Human being. (5) (A-2009)
3. Explain the role of Small Intestine in the Absorption of Food in Man. (4) (A-2010)
4. Describe Digestion in Stomach of Man. (4) (A-2012)

Rawalpindi Board

1. Write a note on Large Intestine of Man. (4) (A-2010)
2. Write down a note on Peristalsis. (4) (A-2011)
3. Explain process of Digestion and Absorption in Small Intestine of Man. (4) (A-2012)

Sargodha Board

1. Explain the process of Food Absorption in Small Intestine of Man. (4) (A-2010)
2. Describe Digestion in Small Intestine along with Absorption of Food. (4) (A-2012)

Faisalabad Board

1. Give different methods of Nutrition in Animals. (8) (A-2007)
2. Give an account of Digestion in Human Stomach. (4) (A-2009)
3. Describe Functions of Oral Cavity of Human. (4) (A-2010)

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|-------|--|-----|----------|
| 4. | Explain Digestion in Oral Cavity of Man. | (4) | (A-2011) |
| 5. | Explain Digestion in the Stomach of Man. | (4) | (A- |
| 2012) | | | |

Chapter No:13

No Essay Type Question According to New Pattern

Chapter No:14

Multan Board

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|----|--|-----|-----------------------|
| 1. | Discuss the Evolution of Vertebrate Heart. | (8) | (Model Paper-2006-08) |
| 2. | Write a note on Blood Cells and Cell like Bodies. | (8) | (A-2008) |
| 3. | Describe the Blood's Plasma in detail. | (5) | (S-2009) |
| 4. | Describe one theory about Ascent of Sap. | (5) | (A-2010) |
| 5. | Draw neat and labelled diagram of Human Heart. | (4) | (S-2010) |
| 6. | What are two Hypotheses about Opening and Closing of Stomata? | (4) | (S-2011) |
| 7. | Describe Lymphatic System. Also write down its various functions. | (8) | (A-2012) |
| 8. | Discuss Cohesion Tension Theory for the ascent of sap in plants. | (4) | (A-2013-New) |
| 9. | Compare the structure and function of an artery, vein and capillary. | (8) | (A-2013-Old) |

Bahawalpur Board

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|----|---|-----|----------|
| 1. | Define Transpiration. Describe two hypotheses which may explain the Opening and Closing of Stomata. | (8) | (A-2007) |
| 2. | Explain the Human Cardiac Cycle. | (3) | (A-2009) |
| 3. | Explain uptake of water by Roots. | (5) | (A-2010) |
| 4. | Write in detail the functions of Lymphatic System. | (4) | (A-2011) |
| 5. | Define Transpiration. What are different factors affecting the rate of Transpiration? | (8) | (A-2012) |
| 6. | Explain Lymphatic System of Man. | (4) | (A-2013) |

Dera Ghazi Khan Board

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|----|--|-----|----------|
| 1. | Write the types of Immunity. | (4) | (A-2008) |
| 2. | Describe Mechanism of Opening and Closing of Stomata in plants by K^+ influx method. | (4) | (A-2009) |
| 3. | Distinguish between Closed and Open Blood Circulatory System. | (4) | (A-2011) |
| 4. | Explain the factors affecting rate of Transpiration. | (4) | (A-2012) |
| 5. | What is plasma? Describe its various components | (4) | (A-2013) |

Lahore Board

1. Define Transpiration. Describe the mechanism of Opening and Closing of Stomata. (8) (A-2008)
2. Discuss Transpiration as a Necessary Evil. (4) (A-2009)
3. Illustrate the Mechanism of Opening and Closing of Stomata. (8) (A-2010)
4. Transpiration is Necessary Evil. Comment. (4) (A-2011)
5. Write structure and function of Human Heart. (8) (A-2012)
6. How influx of K^+ ions explain the Opening and Closing of Stomata. (4) (A-2012)
7. Describe Cohesion Tension Theory and Root Pressure Theory of Ascent of Sap. (8) (A-2012)
8. Discuss transpiration as necessary evil. (4) (Group I-A-2013)
9. List functions of blood (any eight). (4) (Group II-A-2013)

Gujranwala Board

1. Write a note on Erythrocytes. (4) (A-2006)
2. What is Transpiration? Give the Factors Affecting the Rate of Transpiration. (8) (A-2008)
3. Compare and contrast the Closed and Open Circulatory System. (4) (A-2009)
4. Explain the phenomenon of Root Pressure. (4) (A-2011)

Rawalpindi Board

1. Explain Lymphatic System in Man. (4) (A-2010)
2. Describe various function of the Blood. (4) (A-2011)
3. Describe any two hypotheses about Opening and Closing of Stomata. (4) (A-2012)

Sargodha Board

1. Write a detailed note on Blood Cells. (8) (A-2010)
2. Explain different hypothesis to explain Opening and Closing of Stomata. (4) (A-2012)

Faislabad Board

1. Compare the transport system between Earthworm and Cockroach. (8) (A-2007)
2. Give the functions of Lymphatic System. (4) (A-2008)
3. Write a note on Oedema. (4) (A-2009)
4. Draw label and explain the structure of Human Heart. Also describe the flow of blood through the Heart. (8) (A-2010)
5. What is Lymphatic System? Describe functions performed by the Lymphatic System. (8) (A-2011)
6. What is Transpiration? Describe its different types. (4) (A-2012)

Questions From Paracticals Multan, and other Boards of Secondary and Higher Secondary Education of Punjab

Multan Board

Biology Paper-I (New Course)

2013 (A)

SECTION-IV (PRACTICAL PART)

10. Attempt any three parts.

5x3=

15

(A). (a) You are provided with a solution, a Carbohydrate and Benedict's solution. Write biochemical test for presence of the substance possible with that reagent. 3

(b) What are Disaccharides? Give two examples. 2

(B). (a) You are provided with flower of *Lythyrus odoratus*. Describe the following parts of flower in Technical terms: - (a) Calyx (b) Corolla (c) Androcium 3

(b) Differentiate between Perfect and Imperfect Flower. 2

(C). (a) Sketch and Label the diagram of Digestive System of Cockroach. 5

(D). (a) How will you measure the effect of wind on transpiration? Write down its procedure. 3

(b) Name any two factors which increase the rate of transpiration. 2

(E) Give one character for the identification of following laboratory specimens: - 5

(i) Ulva **(ii)** Paramecium **(iii)** Sporophyte of Funaria (Moss plant)

(iv) Pinus male cone **(v)** T.S of Dicot stem

Dera Ghazi Khan Board

Biology Paper-I (New Course)

2013 (A)

SECTION-IV (PRACTICAL PART)

10. Attempt any three parts from A, B, C, D and E.

5x3 =15

(A). (i) Write down procedure of Millon's Test for the presence and confirmation of proteins. 3

(ii) What is the color of Iodine solution. 2

(B). (i) Describe in technical terms the following parts of *Solanum nigrum*. 3
>Calyx
>Corolla
>Androcium

(ii) Differentiate between epigynous and hypogynous flowers. 2

- (C) Sketch and label the diagram digestive system of frog. 5
- (D). (i) Write the procedure to measure the factors (wind) affecting the rate of transpiration by potometer. 3
(ii) What is transpiration? Give its two types. 2
- (E) Following specimens were studied in the laboratory. Give one character of each to identify.
- | | | |
|-------------------------|--------------------------|----------------|
| (i) Paramecium | (ii) Euglena | (iii) Adiantum |
| (Sporophyte) | | |
| (iv) Male cone of Pinus | (v) T.S of bifacial leaf | |

Bahawalpur Board

Biology Paper-I (New Course)

2013 (A)

(PRACTICAL PART)

Note. Attempt any three parts.

5x3=

15

- Q. No.10 (a)** (i) Write down the procedure for confirmatory test of Starch. (3)
- (ii) What is Reducing Sugar? Name atleast one reducing sugar. (2)
- (b)** (i) You are provided with flower of *Rosa indica*. Describe its technical terms its: (3)
- | | | |
|-----------|--------------|------------------|
| (i) Calyx | (ii) Corolla | (iii) Androecium |
|-----------|--------------|------------------|
- (ii) Differentiate between Apocarpous and Syncarpous Gynoecium. (2)
- (c)** Sketch and label the diagram of Digestive System of Frog. (5)
- (d)** (i) Write down the procedure to measure the factors (removal of leaves) affecting the rate of transpiration by Potometer. (3)
- (ii) Name two types of Transpiration. (2)
- (e)** Following specimen / slides were studied in the laboratory. Give one character of each to identify:
- | | | |
|-------------------------|-----------------------|---------------|
| (i) <i>Euglena</i> | (ii) <i>Amoeba</i> | (iii) Stomata |
| (iv) Male cone of Pinus | (v) <i>Paramecium</i> | |

Lahore Board

Biology Paper-I (New Course) Group I

2013 (A)

(PRACTICAL PART)

Note: Attempt any THREE questions.

- (A) (a)** You are provided with egg albumin and Millon's reagent. Write biochemical test for the substance which egg albumin contains.

3

- 2 (b) Define proteins. Give two functions of proteins.
- 2 (B) (a) You are provided with flower of *Lathyrus odoratus*. Describe its technical terms its parts: (i) Calyx (ii) Corolla (iii) Androecium
- 3 (b) Differentiate between complete and incomplete flower.
- 2 (C) Sketch and label the diagram of digestive system of cockroach.
- 5 (D) (a) Write down the procedure for the investigation of effect of temperature on activity of Enzyme (pepsin).
- 3 (b) Define pH. What does this abbreviation stand for?
- 2 (E) You are provided following specimens. Give one character for each to identify:
- 5 (i) *Euglena* (ii) Yeast (iii) *Marchantia* (iv) *Adiantum* (v) Dicot stem

Lahore Board

Biology Paper-I (New Course) Group II

2013 (A)

(PRACTICAL PART)

Note: Attempt any THREE questions.

- (A) (a) You are provided with egg albumin and Millon's reagent. Write biochemical test for the substance which egg albumin contains.
- 3 (b) Name the reagents used to detect reducing sugar and starch.
- 2 (B) (a) You are provided with flower of *Solanum nigrum*. Describe its technical terms its parts: (i) Calyx (ii) Androecium (iii) Gynoecium
- 3 (b) Differentiate between complete and incomplete flower.
- 2 (C) Sketch and label the diagram of digestive system of cockroach.
- 5 (D) (a) Write down the procedure for the investigation of effect of temperature on activity of Enzyme (pepsin).
- 3 (b) What is difference between enzyme and substrate?
- 2 (E) You are provided following specimens. Give one character for each to identify:
- 5 (i) *Chlorella* (ii) *Amoeba* (iii) Male *Marchantia*
(iv) *Adiantum* (v) T.S of Dicot Stem